

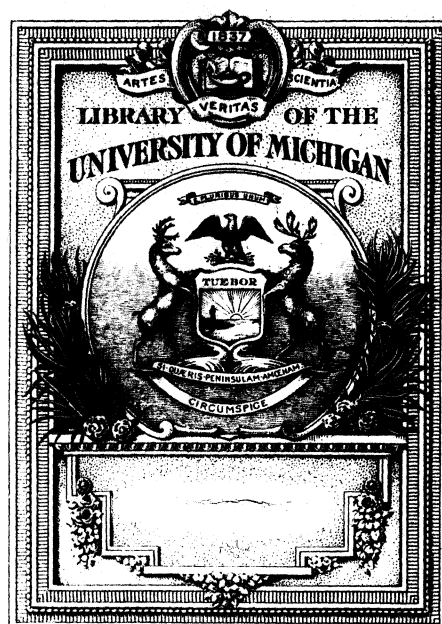
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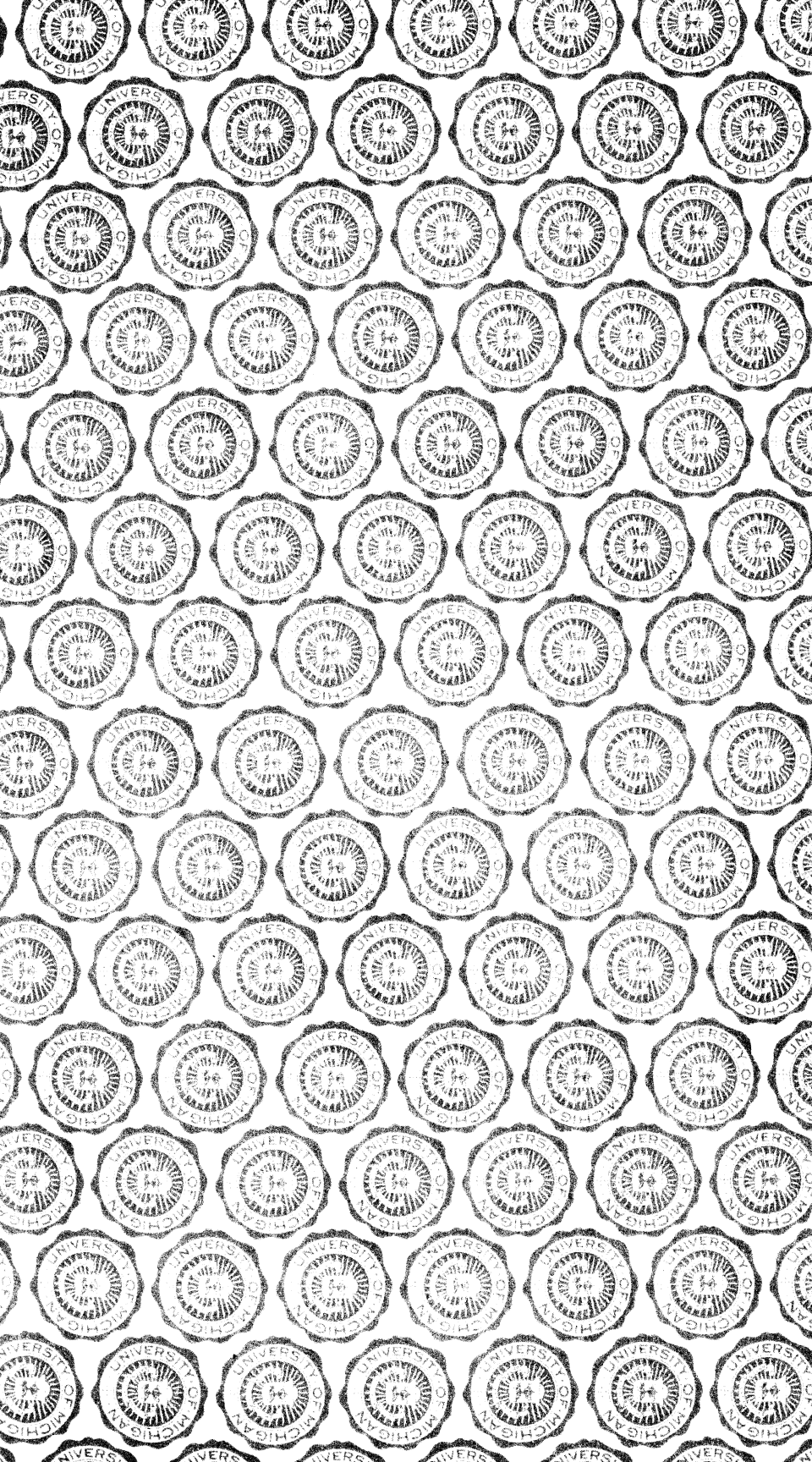
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# AN INTERPRETATION OF RUMPHIUS'S HERBARIUM AMBOINENSE

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BY

E. D. MERRILL



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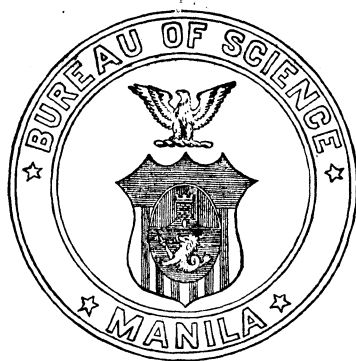
In A Manual of Philippine Silk Culture are presented the results of several years' actual work with silk-producing larvæ together with a description of the new Philippine race.



# AN INTERPRETATION OF RUMPHIUS'S HERBARIUM AMBOINENSE

BY

E. D. MERRILL



MANILA  
BUREAU OF PRINTING  
1917

DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES  
BUREAU OF SCIENCE  
MANILA

Publication No. 9

(Actual date of publication, November 1, 1917.)

DEDICATED TO THE MEMORY  
OF  
CHARLES BUDD ROBINSON, Jr.  
Pictou, Nova Scotia, October 26, 1871  
† Amboina, December 5, 1913



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 Bur. Sci.  
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## ILLUSTRATIONS

PLATE I. Map, showing Amboina and the surrounding islands.

II. Map of Amboina.

TEXT FIGURE 1. Form of field label.





## PREFACE

It was with considerable diffidence and great regret that I assumed the task of interpreting the species described in the Herbarium Amboinense, as it was at my suggestion that Doctor Robinson undertook this task, in the prosecution of which he met his untimely death.

Doctor Robinson arrived in Amboina July 15, 1913, and immediately commenced his field work, which was actively prosecuted up to the time of his death. On the morning of December 5, 1913, he departed from the town of Amboina, unaccompanied, for a botanical excursion through the country south of the town, passing through Amahoesoe, Eri, Silalei, Latoelahat, and Aerlo. While on his return trip he was murdered by the Boetonesse residents of a small settlement between Aerlo and Seri, about 15 kilometers from the town of Amboina. The crime was wholly due to a local superstition, the ignorant natives mistaking Doctor Robinson for the notorious *potong kapala* (the decapitator), who is currently believed to wander about during November and December for the purpose of cutting off human heads.\*

When Doctor Robinson left Manila for Amboina in June, 1913, he fully expected to complete the task of interpreting the species described in the Herbarium Amboinense, but he lived to finish only a part of the necessary field work. His unforeseen death, while he was actively prosecuting his field work, placed an entirely different aspect on the problem, and in order that his untimely death might not have been in vain, I felt constrained to take up the task, at the point where Doctor Robinson's labors were ended, and to carry the project to completion, so far as this could be done from the material and data available.

The qualifications necessary to obtain the best results in this special field are exacting. A wide knowledge of the Malayan flora is essential, as is a thorough understanding of Latin, of Dutch, and of the native names of plants in the Malay Archipelago, qualifications to which I can lay claim only to a limited

---

\* Merrill, E. D. Charles Budd Robinson, Jr. *Philip. Journ. Sci.* 9 (1914) Bot. 191-197. H. R. J.

degree. Under the circumstances the future investigator will doubtless find in the present work errors both of omission and of commission. Much remains to be done before all the species that are typified by the Rumphian descriptions are thoroughly understood, but a great part of this work will depend on a continued and comprehensive botanical exploration of Amboina and of the neighboring islands with special attention to this object.

The actual working up of the results could best have been done at one of the large European botanical institutions, where access could be had to large libraries, to comprehensive collections of botanical material from all parts of the world, and to type and authentically named specimens, as well as the opportunity of consulting specialists in various groups. As a trip to Europe was impracticable, the work was done in Manila, utilizing the local library and herbarium.

In the prosecution of the task I have been obliged to interpret numerous species from their published descriptions, as herbarium material representing them was not available in Manila. Likewise, there are a number of botanical works containing references to the Herbarium Amboinense that I have been unable to consult, as no copies of these were to be had in Manila. This difficulty has been overcome in part by borrowing certain essential works, and in part by sending to various botanical institutions for copies of original descriptions, which have generously been supplied by botanists in the United States and in Europe. In general, while it is realized that the present interpretation of the species described in the Herbarium Amboinense is incomplete and imperfect, it is also realized that completeness and perfection in this difficult task are relative terms and that many of the species that I have been obliged to enumerate as of more or less doubtful status could not have been more definitely placed, even if I had had access to all of the botanical literature and an opportunity to examine all of the extant botanical material from the Indo-Malayan region. It is felt, however, that the present treatment of the Rumphian species meets a real requirement and that, to a very large degree, it will clear the way for the more intensive study of the problems in connection with each individual species of doubtful status.

E. D. MERRILL.

# INTRODUCTION

## THE IMPORTANCE OF THE HERBARIUM AMBOINENSE

The Herbarium Amboinense consists of twelve books, published in six volumes. The purpose of each book is expressly stated, thus:

Liber primus. Qui continet arbores, quae fructus esculentos ferunt, ac culturam humanam requirunt.

Liber secundus. Continens arbores aromaticus, quae aut fructum aromaticum, corticemve, aut odoratum aliquod praebent lignum.

Liber tertius. Continens arbores, quae Resinam, speciososque dant Flores, aut noxium aliquod lac fundunt.

Liber quartus. Arbores continens silvestres, quarum pars aliqua fabrilis est.

Liber quintus. De Arboribus agens silvestribus promisque.

Liber sextus. De fruticibus agens tam domesticis, quam silvestribus.

Liber septimus. De funibus agens silvestribus & Fruticibus reptantibus.

Liber octavus. De plantis agens domesticis, tam victui, quam Medicinae, & decori inservientibus.

Liber nonus. De Convolvulis, & Herbis reptantibus.

Liber decimus. De Herbis agens silvestribus promiscue.

Liber undecimus. Agens de reliquis herbis silvestribus.

Liber duodecimus. De arbusculis agens marinis, & plantis saxosis, seu de Lithodendris & Lithophytis.

To the above should be added the "Auctuarium," cited in this work as volume seven of the Herbarium Amboinense, which contains additional notes on species described in the above twelve books as well as figures and descriptions of plants not included in them.

The classification is primarily the ancient one of trees, shrubs, and herbs, with subdivisions according to habitats and uses. There is no system based on other than the most evident, gross characters. While the purpose of each book is definitely indicated, it is important to understand the object of the work as a whole. Rumphius expressly states that it was based, not on Amboina alone, but on all of the Dutch East Indies. However, as the work was done on plants or parts of plants either growing in Amboina, sent to him from other regions, or brought in from other countries for commercial purposes, he selected the title Herbarium Amboinense. Numerous species now growing

in Amboina are not described in the *Herbarium Amboinense*, for Robinson's collection alone presents more than 350 species of ferns and flowering plants not considered by Rumphius.\* Some of these have undoubtedly been introduced into Amboina since Rumphius's time, but very many of them are indigenous and were certainly as common there in the seventeenth century as they are to-day. Some of the species not appearing in the *Herbarium Amboinense* are small and might have been ignored as being of slight importance; but others are large trees, shrubs, or vines, often with rather showy flowers, and in many cases they are abundant. Doctor Robinson's final conclusions as to the methods used by Rumphius in selecting the species described are expressed in a letter written early in November, 1913, as follows:

I think more and more that the *Herbarium Amboinense* was not at all a complete flora of Amboina as Rumphius found it and that he selected on four bases: Economic plants and others that resembled them; plants that were very different from those he had seen in Europe; plants that greatly resembled those of Europe; plants regarding which there was some superstition or legend. A fifth heading might be made for the very showy plants, but I think that this really belongs under the second group.

The *Herbarium Amboinense* is a classical work on the Malayan flora, and one that is absolutely essential to the systematist to-day. This is not because of any system of classification proposed, for the work follows no definite system, nor on account of priority of its names, as the work is pre-Linnean, and binomial names appearing in the text are merely accidental. The great importance of the work is due to the fact that later authors have made the Rumphian descriptions and figures the actual "types" of many binomials. As an original source the *Herbarium Amboinense* stands preëminent among all the early publications on Malayan botany. In more than 800 original "publications" of species of plants under the binomial system from 1753 to 1908 the Rumphian names or figures, or both, are quoted as synonyms, and in about 350 cases the proposed binomials are based wholly on data given by Rumphius. In no case is a species typified by Rumphian figures and descriptions intelligible without reference to the *Herbarium Amboinense*. These numerous species not represented by any "type" specimens must, of course, be interpreted primarily by the data given by Rumphius, supplemented by a study of botanical specimens from the same

---

\* Merrill, E. D. *Reliquiae Robinsonianae*. *Philip. Journ. Sci.* 11 (1916) Bot. 243-319.

general region from which Rumphius secured his material. In spite of what has been accomplished in the past hundred years on the Moluccan flora and the intensive field work prosecuted in Amboina for four and one-half months by Doctor Robinson, numerous species typified by Rumphius's descriptions and figures are still of doubtful status and must so remain, until in each case they are definitely connected with botanical material originating in the classical locality for each species and agreeing with the descriptions and figures, the native names, the economic uses, and the other characters indicated by Rumphius.

The work already prosecuted in Amboina and the neighboring islands has yielded material by which the essential characters of very many of the Rumphian species can be definitely determined, but much remains to be done in this field. In botanical literature there are scores of species whose only published descriptions are the brief general statements compiled from the Herbarium Amboinense, from which data alone it is usually impossible for the working systematist to gain any definite idea of the true characters of the species. This is especially true in such critical genera as *Calamus*, *Elaeocarpus*, *Citrus*, *Bambusa*, *Canarium*, and in many others. Botanists generally have been content to work on the Malayan flora, describing as new the various forms that have appeared in current collections, without making any serious attempt to determine the exact status of species in the same groups based on Rumphian descriptions. Stability in nomenclature demands that the status of these early species be determined as soon as possible, for otherwise many reductions must be eventually made.

The Herbarium Amboinense was very extensively cited by Linnaeus's contemporaries and successors, especially by Burman f., Loureiro, and others, who wrote on the floras of regions geographically allied to Amboina, and by all authors of general works on systematic botany up to the middle of the nineteenth century. In the more recent works on systematic botany the Herbarium Amboinense is not so frequently quoted as in older ones, references to this work being to a large degree those necessary to explain synonymy. However, binomials based wholly on the Rumphian descriptions and figures continue to be proposed, the latest ones observed being *Sindora galedupa* Prain, 1897, and *Calamus acidus* Beccari, 1906.

It is by no means certain that the importance of the Herbarium Amboinense is fully appreciated. The number and the size of the volumes, seven, folio; the number of printed pages,

over 1,660; and the number of plates, about 695, give but an inadequate idea of the immense amount of data contained in this work. Rumphius described in greater or less detail and named about 1,700 forms. His descriptions, while sometimes scarcely more than casual mention, are more often very ample, and to these are often appended discussions of the economic uses of the various plants described. Few works on Indo-Malayan botany, published since the *Herbarium Amboinense* was written, can compare with it in amount and variety of original data. When it is fully realized that practically all of the immense mass of data included in the *Herbarium Amboinense* represents the observations and accumulated knowledge of one man, the great energy and ability displayed by Rumphius in preparing this monumental work, which was accomplished under very adverse circumstances, can be more fully appreciated.

The work is immensely more than a discussion of the plants of Amboina. While it is true that most of the descriptions and the greater part of the figures were based on Amboina specimens, copious references are found to other regions, extending from Madagascar to China and Japan, southeast to New Guinea, and even to Mexico and South America. It is very evident that Rumphius's colleagues and correspondents transmitted material to him from the whole Orient, and he incorporated his descriptions of this material in the *Herbarium Amboinense*.

Among Doctor Robinson's papers were found the following compiled data, which will give some definite idea of the regions covered by the work. The most important references to Java comprise 125 entries; to Celebes, 83; to Ceram, 77; to Bali, 74; to Banda, 53; to Buru, 42; to the Moluccas proper, including Ternate, Tidore, Batchian, and Halmaheira or Gilolo, 58; to the Philippines, 20; to Boeton, 12; to Borneo, 8; to Sumatra, 8; to Madura, 4; to Manipa, 15; to the Sumbawa-Timor group, including Sumbawa, Timor, Nussa Radja, Solor, Wetter, and Rottea, 23; to the Aru Islands, 6; to the Key Islands, 3; to New Guinea, 4; to the Sula Islands, 8; and to the small islands near Amboina, 8. There are numerous references to China, but fewer to Japan, Indo-China, Malacca, Madagascar, southern Africa, Mexico, Peru, and Brazil. A number of the species figured and supplied with ample descriptions were based on this extra-Amboina material, although others are only casually mentioned. It is at once evident that by no means all the Rumphian species can be interpreted from Amboina material and data alone.



## RUMPHIUS AND HIS WORK

George Everhard Rumphius, as the family name Rumpf or Rumph is Latinized, well named "the Pliny of the Indies," was born in 1627, apparently in Hanau, Hesse Cassel, Germany, and died in Amboina, June 15, 1702, at the age of 75 years. Detailed accounts of his life and work are available in the writings of numerous authors\* so that it is unnecessary to enumerate here more than the most important facts in connection with the preparation and publication of his most renowned work, the *Herbarium Amboinense*.

Rumphius entered the service of the Dutch East India Company as a young man, proceeded to Batavia, Java, in 1653, and in the latter part of the same year to Amboina, where he resided for the remainder of his life. Perhaps for the first two years of his stay in Amboina he was stationed at Larike, but later he was transferred to Hila. It is evident that he commenced the preparation of the *Herbarium Amboinense* shortly after his arrival in Amboina, his active work being continued practically until his death, in spite of the great handicap of blindness after the year 1670. In 1670, while still stationed at Hila, he had the work about completed, and it was then his intention to return to Europe. To make a more definite study and comparison of all his species, he undertook a final series of journeys along the coasts and in the hills, and to this he himself attributes his blindness which followed almost at once. His published works are manifestly based largely on observations made by him between 1653 and 1670. The handicap of blindness was somewhat lessened by aid given him by his wife and by assistants assigned to him by the Dutch East India Company. In 1673 he removed to the town of Amboina and commenced to translate the original Latin text of the *Herbarium Amboinense* into Dutch. In the following year, however, his wife and eldest child were killed in the great earthquake of that year, and subsequent to that date he had less other assistance, some of it of little real value. The original illustrations for the *Herbarium Amboinense* were apparently made by Rumphius himself, but on January 11, 1687, Amboina was visited by a disastrous fire, in which Rumphius's house was destroyed, including his library, many of his manuscripts, and the plates of the *Herbarium Am-*

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\* See Rouffaer and Muller "Biographiën van Rumphius" in their: *Eerste proeve van een Rumphius-Bibliographie. Rumphius Gedenkboek 1702-1902* (1902) 176-185.

boinense. Undaunted by this last catastrophe, he replaced the destroyed illustrations by new drawings, some made by his son, P. A. Rumphius, others made by various assistants supplied by the East India Company. Thus in attempting to interpret Rumphian species the fact must be constantly kept in mind that the illustrations were not made from the actual specimens on which the corresponding descriptions were based. In this connection I venture to give the following translation of Rumphius's own statement:\*

The plates were drawn by various artists, some of the figures larger, some smaller, but each marked with its name, *which I myself never saw* [italics mine]; but I have learned from the skilled, and am informed that they sufficiently agree with the plants themselves, but what ought sometimes to be changed I have marked on the plates themselves or in the text. However, the reader may take these as sufficiently faithful and pleasing, while perchance they may be corrected by others, or better ones produced, for he will readily perceive that in this country I have not been provided with the best artists, for which reason also I have not been ashamed to refer him to other works with larger and better plates, especially Rheede, which has recently been published.

This passage explains much in connection with the Herbarium Amboinense, such as the very crude execution of some figures and the excellent reproduction of others; the union, in a few cases, of the characters of totally different species on a single drawing such as *Pemphis* and *Aegiceras*, and *Urena* and *Triumfetta*; the fact that certain drawings do not conform to the characters given in the description that they are supposed to represent; the absence of drawings to illustrate species that are fully described; why certain species, certainly as common in Amboina in Rumphius's time as they are to-day, are not mentioned in the work; and perhaps the rather striking discrepancies in the magnifications or reductions of parts of various species so evident on many of the drawings.

In 1690 the manuscript of the first six books was delivered to the Dutch East India Company, the remaining parts being delivered in 1695. The manuscript of the first six books was forwarded to Holland from Batavia, Java, in 1692 on the *Waterland*. This ship was destroyed by the French in transit, and the manuscript was lost with the ship. Fortunately a copy had been retained, and thus the fruit of Rumphius's many years of labor was not lost. A copy of these six books was finally sent to Holland in 1696, the manuscript of the remaining six books was

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\* Herb. Amb. 1 (1741) author's preface, last page.

sent the following year. The manuscript of the "Auctuarium," completed by Rumphius in 1701, a few months before his death, was copied at Batavia and sent to Holland in 1704. This important manuscript remained in the archives of the Dutch East India Company until 1736, when the company granted permission to Professor J. Burman to prepare it for printing, the six volumes appearing between 1741 and 1750 and volume seven, the "Auctuarium," in 1755.

The general title of the published work, taken from volume three, is as follows:

Georgii Everhardi Rumphii, | Med. Doct. Hanavensis, Mercatoris Senioris, & in Amboina Consulis, nomine | Plinii Indici celebris, & Membri Industri Societatis Aca- | demiae Naturae Curiosum Germaniae, | Herbarium | Amboinense, | Plurimas complectens Arbores, Frutices, Herbas, Plantas terrestres & aquaticas, | quae in Amboina, | et adjacentibus reperiuntur insulis, | Adcuratissime descriptas juxta earum formas, cum diversis denominationibus, | cultura, usu, ac virtutibus. | Quod & insuper exhibit | varia insectorum animaliumque genera, | Plurima cum naturalibus eorum figuris depicta. | Omnia magno labore ac studio multos per annos collecta, | & duodecem conscripta libris. | Nunc primum in lucem edita, & in Latinum sermonem versa, | Cura & Studio | Joannis Burmanni, | Med. Doct. et in Horto Medico Amstelaedamensi Professoris | Botanici, Academiae Caesareae Naturae Curiosum Socii; | Qui varia adjecit Synonyma, suasque Observationes.\*

Volume seven, the Auctuarium, issued five years after volume six was printed, bears the following title page:

Georgii Everhardi Rumphii | \* \* \* | Herbarii | Amboinensis | Auctuarium, | Reliquas complectens Arbores, Frutices, ac Plantas, | quae in Amboina, et adjacentibus demum repertae sunt insulis, | Omnes accuratissime descriptae, & delineatae juxta earum | formas, cum diversis Indicis denominationibus, | cultura, usu, ac viribus; | Nunc primum in lucem editum, & in Latine sermonem versum, | Cura & Studio | Joannis Burmanni | \* \* \* | Qui varia adjecit Synonyma, suasque Observationes.†

In the present paper the Auctuarium has been consistently cited as volume seven of the Herbarium Amboinense.

While Rumphius's fame rests largely on the Herbarium Amboinense, this by no means represents all that he accomplished.

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\* 1 (1741) 1-200, t. 1-82, preface, introduction, etc.; 2 (1741) 1-270, t. 1-87; 3 (1743) 1-218, t. 1-141; 4 (1743) 1-154, t. 1-82; 5 (1747) 1-492, t. 1-184; 6 (1750) 1-256, t. 1-90. The title page varies somewhat in the different volumes and between editions one and two, a second edition, not essentially different from the first, having been issued in 1750. The Dutch title page is not here repeated.

† (1755) 1-74, t. 1-29, Index Universalis [1-20]. The Dutch title page is not here repeated.

His *Rariteitkamer* \* is in itself a remarkable book, in which are figured and described numerous crustaceans, echinoderms, starfishes, several hundred mollusks, both univalves and bivalves, crystals, fossils, and other forms. This work passed through several editions, and the figures are in general distinctly better than those in the *Herbarium Amboinense*. His *Amboinische Historie* and *Amboinische Land-Beschrijving* still remain in manuscript. His *Amboinische Dierboek* was planned, according to Leupe, to consist of three books, in which the birds, the land animals, and the marine animals were to be described and figured, this to supply for the animal kingdom what the *Kruidboek* (that is, the *Herbarium Amboinense*) did for the plant kingdom. This work, however, was never published as such, although Valentijn apparently utilized much of Rumphius's data, perhaps not always acknowledging its source. His manuscript reports on the agriculture of Amboina, on the fortifications of Castle Victoria, description of the Amboina earthquake, a Malay dictionary, and other writings are still extant. Rumphius's activities as an investigator other than as a student of plants are here briefly mentioned merely to emphasize the ability, energy, and broad interest of the man, for his record as an investigator is a most remarkable one, more especially so when we take into consideration the period in which he lived and worked and the great handicaps under which he struggled.

#### AMBOINA

Amboina, Amboyna, or Ambon, as the name is variously spelled, is a small island situated about 128° east and 4° 40' south, a short distance south of the western end of Ceram on the north side of Banda Sea and not far from the western end of New Guinea. In the history of Malayan botany it is of preëminent importance, as it is the type locality of several hundred species, many of which were very imperfectly character-

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\* D<sup>r</sup> Amboinsche | Rariteitkamer, | Behelzende eene beschryvinge van  
 allerhande | zoo weeke als harde | Schaalvijschen, | te weeten raare |  
 Krabben, Kreeften, | en diergelyke Zeedieren, | als mede allerhande |  
 Hoorntjes en Schulpen, | die men in d' Amboinsche Zee vindt: | Daar bene-  
 vens zommige | Mineraalen, Gesteenten, | en soorten van Aarde, die in d'  
 Amboinsche, en zom- | mige omleggende Eilenden gevonden worden. | Ver-  
 deelt in drie Boeken, | En met nodige Printverbeeldingen, alle naar 't  
 leven getekent, voorzien. | Beschreven door | Georgius Everhardus Rum-  
 phius, | van Hanauw, Koopman en Raad in Amboina, mitsgaders Lid van  
 het Kyzerlyke kweekschool der | onderzoekers van de Natuurkuunde in 't  
 Duitsche Roomsche Ryk opgerecht onder den naam van | Plinius Indicus |  
 (1705) XXVIII+1-340 [43], t. 1-60.

ized by the early authors. From a botanical standpoint it owes its great importance almost wholly to the preparation and publication of Rumphius's *Herbarium Amboinense*. (See Plates I and II.)

During the early colonial period Amboina was of great commercial importance on account of the dominance of the spice trade, of which it was the center for a long time. It was first visited by the Portuguese in 1511, who established a factory there in 1521. The Portuguese were dispossessed by the Dutch in 1609, who have since retained control of the island except for the periods 1796–1802 and 1810–1814, when it was occupied by the British, being finally restored to the Dutch Government in 1814. The island is only 51 kilometers long and has an area of approximately 950 square kilometers. Salahoetoe, the highest mountain on the island, attains an altitude of 1,027 meters.

The flora of Amboina is typically Malayan, although a few Australian types are present as in other parts of the Malayan region. Practically all of the species found along the seacoast are of general distribution from India to Malaya and Polynesia. Likewise most of the species found in the settled areas at low and medium altitudes, weeds of cultivation, and the generally cultivated economic and ornamental plants are the same as those usually found throughout Malaya, very many of which are now distributed in all tropical regions. The primeval forest to a large extent has been destroyed at low and medium altitudes, at least in those regions best adapted to agricultural pursuits, and has been replaced over large areas by cultivated or semicultivated plants, second-growth forests, thickets, and open grasslands characterized by the dominance of the cogon or lalang grass (*Imperata*). In the interior on the slopes of the higher mountains, such as Salahoetoe, some forest still persists.

The island presents a considerable endemic element, but a thorough botanical exploration of the Moluccas will doubtless show that most of the species now known only from Amboina inhabit also the neighboring islands, such as Ceram, Buru, Boeton, Celebes, Gilolo, western New Guinea, and the numerous smaller islands of the Moluccas. From the standpoint of endemic species most of the neighboring islands are probably of much greater interest than is Amboina, but from the standpoint of the history of Malayan botany, no part of the Moluccas can be compared with it.

No description of the vegetation of Amboina is here attempted, as I have not personally visited the island, and Doctor Robinson

left no notes regarding the general character and appearance of the plant life of Amboina. However, a brief, general description has been given by Karsten.\* The general appearance of the vegetation is apparently the same as that of similar regions in the Malay Archipelago and the Philippines, not subject to a prolonged dry season, where the original vegetation has not been entirely destroyed by man.

#### THE GENESIS OF THE PLAN AND THE BOTANICAL EXPLORATION OF AMBOINA

The logical and simple plan of exploring Amboina with the special object of collecting and studying the Rumphian species in their native habitat in connection with all data given by Rumphius, while perhaps conceived by other botanists, has previously been carried into effect only by the late Dr. J. G. Boerlage of the botanic garden at Buitenzorg. In 1900 Doctor Boerlage, accompanied by Dr. J. J. Smith, made a trip to Amboina for the explicit purpose of collecting in the classical localities the plants described by Rumphius, more especially material representing those species on which binomials of later authors had been based. Most unfortunately Doctor Boerlage contracted a fever while in Amboina, which resulted in his death at Ternate, August 25, 1900, while returning to Java, with the consequence that the results of his field work were never made available. Unquestionably, many botanists who have visited Amboina and carried on field work there have realized that it was a classical locality in Malayan botany and that botanical specimens from that island would be of special value in interpreting Rumphian species, yet no single large collection has ever been made in Amboina of which the duplicates were given a wide distribution, so that the general results of previous botanical work in Amboina have not been available to many botanists who have had occasion to discuss Rumphian species. While the present consideration of the species described and figured in the *Herbarium Amboinense* is of necessity incomplete, and doubtless errors in interpretation have been committed both in reference to Rumphian species and to binomials, yet it is felt that the work, somewhat in the nature of an innovation in systematic botany, is a step in advance and that it should prove to be merely preliminary to more intensive field work in relation to the same

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\* Morphologische und biologische Untersuchungen über einige Epiphytenformen der Molukken. *Ann. Jard. Bot. Buitenzorg* 12 (1895) 117-195, t. 13-19.

general problems not only in reference to the Herbarium Amboinense, but also to other pre-Linnean works of similar importance.

Certain post-Linnean works are susceptible of the same general treatment, especially those, like Blanco's *Flora de Filipinas*, in which the various species described are not represented by extant botanical material or types, but must be interpreted solely by the descriptions and data given by the author. In this connection I have in the past four years made an intensive study of all the Philippine species described by Blanco and have prepared for distribution to the larger botanical institutions of the world an extensive *exsiccata* which I have called "Species Blancoanae." The specimens selected for this *exsiccata* are those which I have determined to represent the Blancoan species, and to a large degree these specimens will take the place of Blanco's types, none of which were preserved by him. My Philippine experience in attempting to interpret Blancoan species logically lead to the application of the same general methods in reference to those figured and described by Rumphius.

In 1902, on commencing botanical work in the Philippines, I was immediately confronted with the problem of interpreting the numerous forms described by Blanco in his *Flora de Filipinas*,\* totaling about 1,130 species and varieties, of which not a single one is represented by type material, for Blanco preserved no herbarium specimens. Blanco's species, often very imperfectly described and frequently placed in the wrong genus, have for the most part not been clearly understood by subsequent authors and as a result very many of them appear in botanical literature as doubtful or imperfectly known ones. The average botanist, working in Europe or America from dried specimens alone, with few or no field notes and with no personal knowledge of the Philippines and its vegetation, has found it impossible properly to interpret very many of Blanco's species. The clue to the identity of a Blancoan species is frequently found, not in the description itself, but in the appended economic data, native names, and other information given by Blanco.

My experience in the interpretation of Blanco's species convinced me that the same methods, if applied to Amboina in connection with all the data given by Rumphius in the Herbarium Amboinense, would certainly yield material by which a high percentage of the several hundred species proposed by various

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\* Blanco, M. *Flora de Filipinas* (1837) LXXVIII+1-887; ed. 2 (1845) LXIX+1-619.



authors from 1753 to date might be elucidated. Rumphius's species, like those of Blanco, are not represented by extant botanical material, although it is manifest that Rumphius preserved, at least temporarily, specimens representing some of the forms that he described.\* Thus, in interpreting Rumphian species, we must utilize the same general methods as those devised in securing material and data to locate Blanco's species. In the interpretation of many Rumphian species the investigator has the great advantage of the published figures, but it should be carefully noted that the figures do not always correspond with the characters of the species indicated in the descriptions (see p. 41). In interpreting Blancoan species there is the distinct advantage of his use of technical terms and the rather doubtful advantage of the binomial nomenclature; doubtful not because of the system, but from Blanco's erroneous interpretations of so many genera.

At various times, as it became necessary to interpret species in critical genera by consultation of the Herbarium Amboinense, the necessity of securing botanical material from Amboina became apparent. The desirability of securing Amboina material was discussed by Doctor Robinson and myself at various times during his first tour of duty in the Philippines, 1908-1911. As work on the Philippine flora progressed, the necessity for a definite knowledge of the Rumphian species became more and more evident, until finally the matter was taken up with the Philippine authorities, approval of the Amboina project secured, and coöperation with the authorities of the botanic garden at Buitenzorg, Java, arranged.

In preparation for his work in Amboina, Doctor Robinson made an exhaustive examination of the Herbarium Amboinense, and compiled on index cards all data that might be of assistance in his actual field work. He arranged all native names cited by Rumphius, for he realized that the clue to the identity of a Rumphian species would often be found in the native name or names cited. Regions and localities from which Rumphius secured his material were also classified, so that before commencing field work in Amboina, Doctor Robinson could determine to a great extent what species he might hope to find in Amboina and what would have to be sought for in other islands.

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\* Martelli, U. Le collezioni di Giorgio Everardo Rumpf acquistate dal Granduca Cosimo III de' Medici, una volta esistenti nel Museu di Fisica e Storia Naturale di Firenze, estratto da un catalogo manoscritto dal Prof. Giovanni Targioni-Tozzetti (1903) 1-213.

A special field label was prepared for the work, on which he recorded data of value in connection with the problem of the determination of Rumphian species and the results of his pre-

**FLORA OF THE MALAY ARCHIPELAGO**

HERBARIUM, BUREAU OF SCIENCE, MANILA, P. I.

*Common name* ..... *Dialect* .....*Field No* ..... *Herbarium No* .....*Collector, C. B. Robinson.**Island* .....*Locality* .....*Habitat* .....*Altitude above the sea* ..... m.*Tree; shrub; woody vine; herbaceous vine; herb* .....*Height of plant* ..... m; *diameter* ..... cm.*Flower* .....*Fruit* .....*Supposed to represent* .....*Rumph. Herb. Amb.* .....*Identification considered certain; probable; possible; very doubtful.**Date* ....., 1913.

FIG. 1. Form of field label.

liminary comparison of the actual specimens with the Rumphian figures and descriptions. This field label is shown in fig. 1.

His material, as collected, was compared with the Rumphian descriptions, and his conclusions were noted on the field labels. Specimens that were certainly, probably, or possibly identical

with forms that Rumphius considered were placed in one series, and those that could not be referred to Rumphian species were placed in another. As material was matched with forms named and described by Rumphius, such species were checked on a special list. The two series established by Doctor Robinson in the field have been the basis of the two series into which the collections were finally divided for purposes of study. The specimens that could certainly or with a fair degree of certainty be referred to Rumphian species were placed in the series "Plantae Rumphianae Amboinenses," thus cited in the present work, while the remainder were placed in the series "Reliquiae Robinsonianae" and are the basis of a separate report.\* Of the Plantae Rumphianae Amboinenses, the labels of which bear both the Rumphian name and reference and the binomial as determined by the accepted code of nomenclature, there are about 600 numbers; of the Reliquiae Robinsonianae, including the cellular cryptogams, there are about 960 numbers. In arranging this material and in its critical study, a few specimens have been transferred from one series to the other. In both series collections made at different dates and with separate field numbers have been combined when presenting the same stage of development and unquestionably representing the same form. The data compiled by Doctor Robinson, as a result of his field observations and the comparison of the fresh material with the Rumphian descriptions, has been of immense value in the preparation of the present work.

During the prosecution of his field work in Amboina, it became evident to Doctor Robinson that he could not expect to find all the forms figured and described by Rumphius, nor even all of those that were from Amboina. In his progress report, written from day to day, he frequently mentioned the slow progress of the work and his disappointment in not being able to locate this or that species. He commenced his field work with the idea of taking specimens only from plants found in flower or in fruit, but he occasionally collected single specimens from sterile plants for purpose of check. It is evident that he had located a number of species described by Rumphius of which he collected no botanical material, but which he was watching in the hope that he could later find them in flower or in fruit. At various times he indicated his purpose to collect sterile material of the species that he could not find in flower or in fruit before

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\* Merrill, E. D. Reliquiae Robinsonianae. *Philip. Journ. Sci.* 11 (1916) Bot. 243-319.

his final departure from Amboina, a plan that was never carried out on account of his sudden and unexpected death. Many of the very common species, such as the coconut, the betle nut palm, the papaya, and numerous cultivated ornamentals, are lacking in the collection chiefly for the reason that the actual preparation of specimens of these common and well-known plants was purposely deferred until the more important and critical species had been secured.

In the prosecution of his field work in Amboina, Doctor Robinson was handicapped by the same factors that have hindered our attempts to secure material in the Philippines to clear up the status of Blanco's species. With the increase of population in Amboina, as in the Philippines, the original vegetation has been totally destroyed over large areas, the virgin forest being replaced by grasslands, thickets, and second-growth forests of a type entirely different from the original vegetation. Many species definitely mentioned by Rumphius as occurring in specific localities can no longer be found in the indicated places. It is by no means improbable that many species, common in Amboina in the seventeenth century, have now become extinct there, or at least are very rare and local, even as various Philippine species mentioned by Blanco as occurring in definite localities can no longer be found within many miles of the respective places mentioned by him. Native names given by Rumphius have in many cases become obsolete or are so altered as to be hardly recognizable, although in many cases the name cited by Rumphius is still in use and for the same species under which it was cited by him. Rumphius, like Blanco, secured most of his material from the settled areas and from the forests at low altitudes, and it is unfortunately true that, in the Malayan region, the forest vegetation at low altitudes is the vegetation most rapidly destroyed by the encroachment of man.

The practical extermination of the original vegetation of those regions best adapted to agricultural pursuits is a subject that deserves more consideration than it has received.\* Unquestionably, many species of plants have been exterminated in various parts of the Malayan region within the past century as the population has increased. The areas devoted to agriculture are rapidly being enlarged in many parts of this vast region, and the consequent destruction of primeval forests over large areas is a strong argument in favor of a vigorous and intensive botanical

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\* Merrill, E. D. Notes on the flora of Manila with special reference to the introduced element. *Philip. Journ. Sci.* 7 (1912) *Bot.* 145-208.

exploration of Malaya, in order that representatives of certain elements of the flora shall be secured while they are still available or at least easily accessible. A continued and intensive exploration of the Moluccas is greatly to be desired before the actual plants that will yield material to clear up various Rumphian species of doubtful status shall have become extinct or at best local and of rare occurrence.

It was originally planned that Doctor Robinson should prosecute his field work for about four months, but as the work progressed it became increasingly evident to him that this period of time was altogether too short. On the basis of representations made by him, Doctor Robinson was authorized to continue his field work until June, 1914, thus giving him practically a year in the field. It was planned that he should also extend his field work to neighboring islands, and at the time of his death he had made arrangements to visit Buru Island, as for the season he had secured a high percentage of the Amboina species to be found in flower or fruit. It was fully realized that his time could be more profitably spent in exploring neighboring islands, utilizing the intermediate periods between trips for a reëxamination of the various parts of Amboina for the purpose of locating in flower or fruit those species that had not been detected during his first period, July to December, of intensive field work. His wholly unexpected death prevented the fulfillment of these plans.

This work has been based on the material and observations secured in a period of four and one-half months. It is evident that could the revised plan have been carried out and field work extended until June, 1914, much more material and data would have been available for study, with the result that the interpretation of the Herbarium Amboinense would have been more satisfactory and more nearly complete than it is.

Botanists and collectors who have actually prosecuted field work in Amboina\* include LaBillardière, the first naturalist to visit the island after Rumphius's death, Christopher Smith, the younger Roxburgh, Lahaie, Reinwardt, d'Urville, Zippel, Lesson, Hombron, Forsten, de Vriese, Teysmann, Naumann, Binnendyk, de Fretes, Beccari, Forbes, Warburg, Karsten, Boerlage, Treub, J. J. Smith, and Robinson. Some were there but for a few days, others for longer periods; and their collections, now widely scattered in different herbaria, comprise several thousand specimens. Were it possible to segregate from the various herbaria

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\* Warburg, O. Die botanische Erforschung der Molukken seit Rumpf's Zeiten. Rumphius Gedenkboek 1702-1902 (1902) 63-78.

all of the Amboina material extant, doubtless many other obscure points regarding Rumphius's species could be elucidated, which in the following critical consideration I have been obliged to interpret from published descriptions alone. Doctor Robinson's four and one-half months of field work in Amboina were insufficient in which to secure the necessary material and data to settle all of the doubtful points in connection with the forms described by Rumphius from Amboina material alone, and he had no opportunity to visit neighboring islands to search for special material that might serve to determine the status of Rumphius's rather numerous extra-Amboina species.

#### ERRORS IN THE INTERPRETATION OF RUMPHIAN SPECIES

The early botanical authors, such as Linnaeus, Burman f., Loureiro, Lamarck, and numerous others, had but a slight conception of the principles of geographic distribution of plants, and accordingly in their reductions of Rumphius's species many grave errors were committed. Very often in the early literature one finds the illustrations of an Amboina plant quoted as an exact synonym of a species of Indo-China, when in reality the two are totally different and not infrequently have been found to represent different genera. It is not at all certain that in quoting illustrations of various species as synonyms Linnaeus and his contemporaries and immediate successors intended them as exact synonyms; it would seem, in many cases at least, that the citations of illustrations as synonyms was intended to convey to other botanists some conception of what the species was like, and not necessarily to indicate that it was an exact equivalent of the species under which it was cited.

In the first two or three decades following the death of Linnaeus systematists were conservative in the matter of describing new species. There was a very strong tendency to refer specimens to species already named by Linnaeus, rather than to describe material, even from distant and relatively unknown parts of the world, as new. Thus we find Loureiro in his *Flora Cochinchinensis*, published in 1790, erroneously referring numerous Cochin-China specimens to Linnean species and likewise attempting to match his Cochin-China material with the Amboina species described and figured by Rumphius, apparently on the assumption that if a plant grew in Cochin-China, it should also grow in Amboina. In Loureiro's work there are scores of cases where the Rumphian name and figure are quoted as an exact synonym of a Cochin-China species described by him as new.

In very many cases Loureiro took his specific name from Rumphius, yet in not a single case is a species described by Loureiro to be interpreted by the reference to Rumphius, as his descriptions were not based on data supplied by the Herbarium Amboinense, but on actual specimens from Cochinchina or southern China.

We find the same condition in Burman f., *Flora Indica* (1768), where Burman's conception of the species proposed was not gained from the Rumphian synonym cited, often the only one given, so much as from actual specimens from Java or from some other part of the Indo-Malayan region; in few cases are Burman's species, as published in his *Flora Indica*, to be typified by the Rumphian reference cited. In the early volumes of Lamarck's *Encyclopédie* we find likewise numerous cases where species actually described from specimens originating in the Mascarene Islands, in the Philippines, and in other regions remote from Amboina are supplied with a Rumphian synonym, which usually has proved to be misplaced. Error after error has crept into systematic botany by interpretation of species by a Rumphian synonym, wrongly placed, rather than by consultation of the actual type specimen. These errors, once published, have been perpetuated by other authors, sometimes because of failure to interpret types properly, sometimes because of lack of interest in problems of nomenclature, sometimes because of non-accessibility of type specimens for purposes of comparison, and for other reasons. By way of illustration I need cite only one or two extreme cases.

The type of *Fagara triphylla* Lam. is a Philippine specimen collected by Sonnerat, and a recent examination of it in Lamarck's herbarium at the Museum d'histoire Naturelle, Paris, shows it to be identical with the endemic Philippine *Melicope luzonensis* Engl. De Candolle, however, apparently interpreting *Fagara triphylla* Lam. chiefly from the Rumphian synonym, *Ampacus angustifolius* Rumph., cited by Lamarck in the original description, transferred it to *Evodia* as *Evodia triphylla* DC.; and later authors, also interpreting it from the Rumphian synonym, have given *Evodia triphylla* (Lam.) DC. a range extending from India to Japan southward through Malaya to New Guinea. In clearing up this question of synonymy\* I have shown that *Fagara triphylla* Lam.=*Evodia triphylla* DC.=*Melicope triphylla* Merr. is a species confined to the Philippines; that *Evodia tri-*

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\* On the identity of *Evodia triphylla* DC. *Philip. Journ. Sci.* 7 (1912) Bot. 373-378.



*phylla* of various authors includes at least three distinct species in two different genera; and now the occurrence of true *Ampacus angustifolius* Rumph. in the Amboina collection shows that this Rumphian species, while a true *Evodia*, represents still another distinct species. *Evodia triphylla* DC. as interpreted by various authors has included at least four distinct species in two different genera.

Another case is that presented by *Ricinus mappa* Linn., based wholly on *Folium mappae* Rumph. This is the basis of *Macaranga mappa* Muell.-Arg., Mueller extending the range of the species to the Philippines by the erroneous reduction of *Croton grandifolius* Blanco as a synonym. I have shown that *Macaranga grandifolia* (Blanco) Merr. is a species entirely distinct from *Macaranga mappa* Muell.-Arg., yet Pax and K. Hoffman\* in their recent monograph of this group interpret *Macaranga mappa* (Linn.) Muell.-Arg. wholly from Philippine specimens, erroneously citing *Croton grandifolius* Blanco, *Macaranga porteana* André, and *Macaranga grandifolia* Merr. as synonyms, and even figuring the species from Philippine material. A casual comparison of Philippine material with Rumphius's figure, the type of *Ricinus mappa* Linn. = *Macaranga mappa* Muell.-Arg., shows that two totally different species are involved. The occurrence of typical *Folium mappae* Rumph. in Robinson's Amboina collections shows conclusively that I was correct in separating the Philippine form, that Mueller was wrong in reducing *Ricinus grandifolius* Blanco to *Macaranga mappa*, and that Pax and K. Hoffman were entirely wrong in their interpretation of *Macaranga mappa* Muell.-Arg. The two species involved are so entirely different that they belong in distinct sections of the genus.

#### THE INTERPRETATION OF RUMPHIAN SPECIES AS TYPES

In the interpretation of the species of older authors under which Rumphian names are cited as synonyms one point must constantly be kept in mind. This is, as to whether the species was based on an actual specimen in the hands of the author or, by citation, wholly on the Rumphian description and figure. In nearly every case it is possible to determine this point merely by an examination of the description, for even when no specimen is actually cited, if the species was based on an actual specimen, data are usually given that could not have been derived from

\* Euphorbiaceae-Acalypheae-Mercurialinae. Engl. Pflanzenreich 63 (1914) 320.

either Rumphius's description or figure. Even in Linnaeus's works descriptions based on actual specimens rather than on cited synonyms are usually thus determinable. I have already noted that none of Loureiro's species, even when the specific name is taken from Rumphius, are to be interpreted by the Rumphian synonym cited. The same is true of most of Burman's species published in his *Flora Indica*, many of those proposed by Lamarck, and those of many other authors. Where a species was based on an actual specimen supplemented by a reference to Rumphius, the specimen is manifestly the type, but it then becomes necessary to determine whether or not the specimen represents the same species as the Rumphian synonym cited. In a very high percentage of such cases the actual specimen described has been found to represent a species different from the one figured by Rumphius, due to the fact that the early authors, having little conception of the geographic distribution of plants, failed to distinguish between the indigenous and endemic elements in the Amboina flora and those species of wide distribution. Among all of the earlier workers there was a strong tendency to refer the Rumphian illustrations to species described from actual specimens, even if there was only a superficial resemblance between the specimen and the figure. None of them realized the necessity of interpreting Moluccan species from Moluccan specimens; and, even if the value of such procedure were realized, no botanical material from Ambonia was available to European botanists until the close of the eighteenth century and, even then, only a limited amount.

In the present consideration of the *Herbarium Amboinense* those species and their synonyms that were based solely on plants described and figured, or merely described, by Rumphius have been indicated by the term "type!" in parentheses following the citation. The list of such species could doubtless have been extended if in the course of the preparation of the manuscript, I had had access to all the literature. As it is, nearly 350 such "types" have been indicated. From the standpoint of taxonomy then, the *Herbarium Amboinense* is of relatively very great importance, for its descriptions and figures typify a very large number of binomials of later authors. Only two other pre-Linnean works on the Indo-Malayan flora can be compared with the *Herbarium Amboinense* in this respect, these being Rheede's *Hortus Malabaricus* and Linnaeus's *Flora Zeylanica*, and most of the actual specimens on which the later work was based are extant.

THE INTERPRETATION OF THE SPECIES DESCRIBED IN THE HERBARIUM  
AMBOINENSE BY VARIOUS AUTHORS

LINNAEUS AND STICKMAN

Citations of Rumphian synonyms are found in the first published work on the binomial system,\* but these are few and of slight importance, as Linnaeus did not secure a copy of the Herbarium Amboinense until his manuscript was completed:

Upus eximium beati Rumphii cura amplissimi D. Burmanni orbi botanico redditum, ad me accessit primum absoluto a typographo opere, cujus itaque synonymia seorsim tradere animus est.†

About nineteen Rumphian synonyms are cited in the first edition of the Species Plantarum, of which four are in volume one, the remainder in volume two, but in only four cases are the Linnean species based wholly on the Rumphian synonyms, and these are all found in the Appendix. The list is as follows:

<i>Cynometra cauliflora</i> Linn.	<i>Areca catechu</i> Linn.
<i>Cynometra ramiflora</i> Linn.	<i>Caryota urens</i> Linn.
<i>Averrhoa carambola</i> Linn.	<i>Plukenetia volubilis</i> Linn.
<i>Averrhoa bilimbi</i> Linn.	<i>Hibiscus surattensis</i> Linn.
<i>Garcinia mangostana</i> Linn.	<i>Rubus parvifolius</i> Linn.
<i>Acrostichum siliquosum</i> Linn.	<i>Rubus moluccanus</i> Linn.
<i>Borassus flabellifer</i> Linn.	<i>Convolvulus peltatus</i> Linn.
<i>Corypha umbraculifera</i> Linn.	<i>Quercus molucca</i> Linn.
<i>Cycas circinalis</i> Linn.	<i>Croton variegatus</i> Linn.
<i>Cocos nucifera</i> Linn.	

The last four are based wholly on Rumphius's figures and descriptions. The new genus and species, *Rumphia amboinensis* Linn., is not based on Amboina material, contains no reference to the Herbarium Amboinense, and is the Indian *Cordia tiliæfolia* (Poir.) Warb.‡

Linnaeus realized the great importance of Rumphius's work and at once assigned to one of his students, Olaf Stickman, a study of the Herbarium Amboinense. In the following year, 1754, Stickman's dissertation on the Herbarium Amboinense was printed, this being probably the first work published following the binomial system of nomenclature after the system was proposed. Stickman's publication is discussed below.

In the second edition of the Species Plantarum § Rumphius's Herbarium Amboinense is listed among the "Auctores Reforma-

\* Linnaeus, C. Species Plantarum (1753) 1-1200.

† Linnaeus, C. Op. cit. 1199.

‡ Rumphius Gedenkboek 1702-1902 (1902) 78.

§ Linnaeus, C. Species Plantarum ed. 2 (1762-63) 1-1684.

tores" and is placed in the group of "Fundadores." Numerous reductions of Rumphian species had already been made in Stickman's dissertation on the Herbarium Amboinense (1754), in the 1759 reprint of this work,\* and in the tenth edition of the *Systema Naturae* (1759), most of which are repeated in the second edition of the *Species Plantarum*; in all there are about 275 references to the Herbarium Amboinense in this work. Additional references are included in Linnaeus's later works.

The first attempt to interpret the species described and figured in the Herbarium Amboinense as a whole in terms of the binomial system of nomenclature was made one year after the system was proposed. This was nominally the work of Olaf Stickman, one of Linnaeus's pupils, but it is manifest that the actual work was largely that of Linnaeus himself. Stickman's dissertation,† as originally published, is a very rare work, and copies of it are known in but few libraries. Rouffaer and Muller ‡ cite only two copies, one in the University Library at Upsala, Sweden, and one in the Königliche Hof- und Staatsbibliothek, Munich. There is a copy in the library of the Linnean Society, London; one in the library of the British Museum; one in the library of the New York Botanical Garden; and one in the private library of Dr. J. H. Barnhart, of the New York Botanical Garden; and I was so fortunate as to secure a copy from a European dealer for our work on the Amboina project. Doubtless other copies will be found in the older European libraries.

In this work an attempt was made to reduce only those species figured by Rumphius in volumes one to six of the Herbarium Amboinense; volume seven, the *Auctuarium*, was not printed until the year following the appearance of Stickman's work and is, accordingly, not included. The species are arranged in the Rumphian sequence, giving the Rumphian name, the numbers of the plates, and the binomial equivalents of the various species so far as they could be determined. About three hundred of the forms figured by Rumphius are referred to binomials already proposed in the first edition of the *Species Plantarum* of Linnaeus,

\*Amoen. Acad. 4 (1759) 112-143.

† Herbarium Amboinense, | quod | consens. experient. Facult. Medicae | in Regia Academia Upsalensi, | sub praesidio | viri nobilissimi atque experientissimi, | Dn. Doct. Caroli | Linnaei, | . . . | publico examini submittit, | Alumnus Regius | Olavus Stickman, | Smolandus. | In auditorio Car. Majori d X. Maji, | anno MDCCLIV | Upsaliae | . . . (1754) IV+1-28.

‡ Eerste proeve van eene Rumphius-Bibliographie. Rumphius Gedenkboek 1702-1902 (1902) 196.

or published for the first time in this dissertation. In addition to these three hundred specific reductions, many others are referred to generic names under the Linnean system, about twenty to species characterized by Rheede in his *Hortus Malabaricus*, and a few are connected with other pre-Linnean names. As is to be expected many of the proposed reductions have since been shown to be wrong.

In this work more than twenty binomials appear for the first time, and these, typified by the Rumphian figures and descriptions, although validly published, were overlooked by the compilers of *Index Kewensis* and do not appear in that work or, if included, are credited to later publications. Among these are the following:

*Garcinia celebica* Linn.

*Psidium cujavirus* Linn.

*Myrtus leucadendra* Linn.

*Momordica indica* Linn.

*Plumbago indica* Linn.

*Tragia scandens* Linn.

*Erythrina variegata* Linn.

*Rhizophora caseolaris* Linn.

*Rhizophora corniculata* Linn.

*Ricinus mappa* Linn.

*Ricinus tanarius* Linn.

*Lens phaseoloides* Linn.

*Menispermum flavum* Linn.

*Adenanthra falcata* Linn.

*Hernandia ovigera* Linn.

*Convallaria fruticosa* Linn.

*Piper decumanum* Linn.

*Bromelia comosa* Linn.

*Dolichos pruriens* Linn.

*Momordica trifolia* Linn.

*Pothos latifolius* Linn.

*Pancratium narbonense* Linn.

Under modern conditions there would be no question whatever as to the authority for these names, for unless otherwise stated in the text the authority would be the author of the Dissertation. In this case the work was done under Linnaeus's inspiration and direction, and the reductions of the Rumphian species must have been made largely, if not wholly, by him. I have accordingly quoted Linnaeus as the authority for all new combinations appearing in Stickman's dissertation.

In 1759 Stickman's Dissertation was reprinted under the title "*Herbarium Amboinense, sub praesidio D. D. Car. Linnaei, proposuit Olavus Stickman, Smolandus*"\* Whatever doubt there may be as to the actual authorship of the original edition of Stickman's work in 1754, the 1759 reprint must certainly be credited to Linnaeus. This differs from the original edition notably in that the contents of volume seven of the *Herbarium Amboinense*, the *Auctuarium*, are included, while appended to the treatment of the Rumphian species is the "*Flora Amboinensis*," in which the species recognized are arranged under the Linnean classes *Monandria*, *Diandria*, etc., to which in turn an "Appendix"

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\* Linnaeus, C. *Amoen. Acad.* 4 (1759) 112-143.

is added to include the *Palmae* and "Singulares." In the treatment of the species figured in volumes one to six of the *Herbarium Amboinense*, the 1759 reprint differs from the original edition in certain respects. Some corrections are made in the indicated binomials, and a few new ones are added. The number of Rumphian species reduced in this work is about 330, an increase of about 30 over the original edition, but this includes 12 from the *Auctuarium* that were not included in the 1754 edition. As in the original edition, certain binomials which have not been listed in *Index Kewensis*, appear in the 1759 reprint. Among these are *Muntingia bartramia*, *Phaseolus cylindricus*, *Panicum vulpinum*, *Justicia bivalvis*, *Sesuvium portulacastrum*, *Varneria augusta*, *Lagerstroemia chinensis*, and *Canarium indicum*. In the present work Linnaeus has been quoted as the authority for these binomials, as well as for those appearing in the original, 1754, edition.

## BURMAN

Burman, in editing the *Herbarium Amboinense*, added various notes on the identity of the Rumphian species and at the end of volume seven, the *Auctuarium* (1755), added his "Index universalis in sex tomos et auctuarium herbarii Amboinensis Cl. Georgii Everhardi Rumphii," in which he reduced about 311 of the Rumphian species to the Linnean binomial system, for the most part following the reduction proposed by Linnaeus in Stickman's dissertation issued the preceding year. Here he also published a few new binomials typified by Rumphius's figures, which have been entirely overlooked by all later authors. Those in the vegetable kingdom are *Mespilus silvestris* Burm., *Phaseolus marinus* Burm., *Pepo indicus* Burm., and *Aurantium maximum* Burm. This index consists of twenty pages, unnumbered, the species being alphabetically arranged under their Rumphian names with references to the book, the chapter, and the volume in which they are described.

In 1769 a second edition of this index was issued by Burman, under the title—

Index alter in omnes tomos Herbarii Amboinensis Cl. G. Everhardi Rumphii quem de novo recensuit, auxit et emendavit Joannes Burmannus, M. D. Botanices Professor, Academiae Caesareae Naturae Curiosum, nec non Regiae Scientiarum Academiae Upsaliensis membrum.

It consists of twenty-two unnumbered pages, folio, and is apparently a rare work. Rouffaer and Muller\* in their bibliography cite an example of it which they examined in the library

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\* Rumphius Gedenkboek 1702-1902 (1902) 200.

of the K. Svenskt Vetenskapsakademien, Stockholm, and one in the private library of Doctor Greshoff, late director of the Colonial Museum at Haarlem, Holland; they consider it remarkable that the work is lacking in such libraries as those of Leiden, Upsala, Halle, and Munich. There are copies in the libraries of the British Museum; the Linnean Society, London; and the Royal Botanic Garden, Kew, England; and I have been supplied with a photostat copy of it by Dr. Walter T. Swingle, of the United States Department of Agriculture, Washington, D. C. The second edition differs from the original chiefly in the additional reductions included. A total of about 458 binomials appear in this work, nearly 150 more than in the first edition. The reductions included are chiefly those indicated in the second and the third editions of Linnaeus's *Species Plantarum* and in the younger Burman's *Flora Indica*, the latter having been published in 1768. Two new binomials appear, *Achyranthes spiciflora* Burm. and *Verbesina aquatica* Burm., the former, from the reference given, manifestly a misprint for *Acalypha spiciflora* Burm. f.; while of the four published in the first edition in 1755 *Aurantium maximum* Burm. is eliminated in favor of *Citrus decumana* Linn.

## BUCHANAN-HAMILTON

Doctor Francis Buchanan-Hamilton commenced a critical consideration of the Rumphian species, which, however, was never completed or, at least, except for the first two parts, never published. The first part is entitled *A Commentary on the Herbarium Amboinense, Liber Primus*; and the second part, *A Commentary on the Second Book of the Herbarium Amboinense*.\* The work is of considerable interest and value. Each species described by Rumphius is discussed to a greater or less length with critical notes on the identity of the individual species and with reasons for and against the various proposed reductions. Hamilton was handicapped by lack of knowledge of the Malayan flora and attempted to interpret the Rumphian species largely from his experience with the Indian flora. The various forms actually described from Indian material are usually specifically distinct from the Rumphian species under which they were placed; but Hamilton usually does not claim that the Rumphian species is identical with the one he describes; he merely says that the two resemble each other or are manifestly allied. In a few cases, in the first part of his work, he proposed binomials typified by the Rumphian species, but none of these

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\*Mem. Wern. Soc. Edinburgh 5 (1826) 307-383; 6 (1832) 286-333.

appear in the second part. Unlike his predecessors who had attempted to interpret the Rumphian species, he did not confine his comments to the species figured, but also attempted to account for those described but not figured.

#### HENSCHEL

Henschel's \* attempt to interpret the species described by Rumphius is merely an enumeration of the Rumphian species by volumes in the order in which they appear in the *Herbarium Amboinense*, with their binomial equivalents, so far as determined, in parallel columns. He considers chiefly the species figured by Rumphius. The enumeration, a mere compilation, is very faulty and untrustworthy, as is to be expected, for Henschel was not a botanist and had no personal knowledge of the Indo-Malayan flora. New binomials, with one or two exceptions, do not occur in this work, nor is there any critical discussion of the various species. The *Clavis Herbarii Amboinensis* of Henschel in arrangement compares closely with the sequence of Rumphian species published in the present work at the end of the systematic enumeration (p. 511 to 547), except that through the work of numerous botanists on the Malayan flora a very much higher percentage of the Rumphian species can now be placed than Henschel found possible. Henschel's work is, in general, of very slight value, so far as it applies to the species Rumphius described and their binomial equivalents.

#### HASSKARL

The most pretentious attempt heretofore made to interpret the species described in the *Herbarium Amboinense* is that by Doctor J. K. Hasskarl, entitled *Neue Schlüssel zu Rumph's Herbarium amboinense*.† In this work the species are arranged under the Rumphian names in Rumphius's sequence, citing the page and plate numbers for each, the native names, and a chronological arrangement of the reductions proposed by various authors, with citations of literature. Hasskarl's work is scarcely more than a compilation, but is a remarkable example of patience and perseverance on the part of the author. The mere matter of

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\*Henschel, A. G. E. T. *Clavis Herbarii Amboinensis* pp. 139-202, in his. *Vita G. E. Rumphii, Plinii indicii accedunt specimen materiae Rumphianae medicae clavisque herbarii et thesauri Amboinensis*. (1833) XIV+1-216.

† *Abhandlungen der Naturf. Gesellschaft Halle* 9 (1866) 145-389; Reprint (1866) 1-247.



searching the literature from 1753 to 1866 for references to the Herbarium Amboinense must have entailed many months of exacting labor. Where numerous synonyms are cited, or at least numerous names are listed, to which a Rumphian species has been reduced, usually no opinion is expressed as to which is the correct one. Many of those suggested by Hasskarl himself are palpably wrong, due perhaps to his lack of knowledge of the Malayan flora. It is not evident that Hasskarl ever had a very wide knowledge of the flora of the Malay Archipelago in spite of his residence in Java and his published botanical contributions. Many of his errors of interpretation were primarily due to the same factor that caused others to fail in properly interpreting Rumphius's species; that is, a lack of botanical material from Amboina and the neighboring islands. On account of the method of arranging his data, Hasskarl's work is difficult to consult, is entirely unsatisfactory in aiding the botanist to gain a definite idea of which species are actually included in Rumphius's work and which are not, and because of the numerous errors in reductions is, it is feared, more or less discredited among botanists familiar with the Malayan flora.

Hasskarl's work performed one distinct service that his predecessors failed in. Stickman, Linnaeus, Burman, and Henschel dealt only or largely with the species figured by Rumphius, ignoring the descriptions to a large extent; Hasskarl, however, brought out clearly the fact that Rumphius described very many more forms than he figured. He perhaps went to extremes in enumerating all the variants of such plants as the coconut palm, sugar cane, rice, banana, and other cultivated forms, and certainly went to extremes in attempting to reduce the Rumphian descriptions of these variants to named forms and varieties under the binomial system. Several binomials were proposed by Hasskarl, typified by citation of Rumphius's descriptions and figures, in attempting to account for Rumphius's species. These were overlooked in compiling *Index Kewensis*, but invariably fall as synonyms.

In consulting Hasskarl's work, it should be noted that the numerous citations of Loureiro, *Flora Cochinchinensis*, are of the second, or Willdenow's, edition, 1793; that the references to Linnaeus are not to the original works of this author, but to Richter's *Codex Botanicus Linneanus* (1840); while Stickman's 1754 dissertation on the Herbarium Amboinense, and usually also the 1759 reprint, is not cited.

## THE PRESENT STATUS OF RUMPHIAN SPECIES

Rumphius named and described approximately 1,700 plants that he considered to represent distinct forms. However, many of the plants he named and characterized are "forms" or "varieties" rather than "species" in the generally accepted sense of these words. Slight variations in the color of the leaves, of the flowers, or of the stems of plants; equally slight differences in the size of certain parts; and other trivial characters were deemed by him to be of sufficient importance to warrant the characterization of the form and the bestowal of a distinctive name. Thus, in the case of cultivated plants, such as the coconut, the betel-nut palm, the sago palm, the sugar cane, taro, rice, and balsam, both slight and prominent variants were distinguished, while in wild plants equivalent distinctions were often made.

In terms of the binomial system, as species are understood to-day, the 1,700 forms named and to a greater or less degree characterized by Rumphius can be reduced to about 1,200 species, including those that, while apparently distinct, are of more or less doubtful status and have not been definitely referred to any genus. Of these 1,200 species about 930 can be definitely or fairly definitely referred to binomials, and about 140 additional ones can be safely placed in their respective genera, leaving about 130 that from data and material at present available cannot be definitely located under the binomial system; some of these cannot be even placed in their proper families. A high percentage of these doubtful species are those that are very imperfectly and briefly described, some being scarcely more than casually mentioned; few of them are figured.

As already noted, many binomials have been based wholly on the Rumphian figures and descriptions. In about 800 cases references to the *Herbarium Amboinense* are found in the original descriptions or publications of species, while about 350 binomials have been based wholly on various species more or less imperfectly characterized by Rumphius. During the past one hundred and thirty-five years numerous botanists have attempted with greater or less success to interpret these Rumphian species by connecting the Rumphian names and descriptions with actual botanical specimens. Many errors in interpretation and in identification have been made, but the general results have been such that to-day a high percentage of the Rumphian species have been definitely connected with extant botanical material, and their true status has been determined. As a result of Doctor Robinson's

work in Amboina, the list of doubtful species has been greatly reduced.

In the present consideration about 930 of the Rumphian species have been definitely referred to binomials, and of these about 470 are definitely represented by botanical specimens collected by Doctor Robinson. It should be borne in mind, however, that many of the species that are not represented by specimens collected by Doctor Robinson were originally described by Rumphius from material that did not originate in Amboina, much of it coming from distant lands (see p. 14).

There are about 45 species, proposed by various authors, that are known to-day only from the data originally given by Rumphius; that is, those species that have not been, to my knowledge, definitely and correctly connected with actual botanical specimens from which in turn their true characters and relationships can be determined. Among these species of doubtful status are the following:

<i>Lentinus tuber regium</i> Fries.	<i>Polyalthia</i> sp. ( <i>Guatteria rumphii</i> Blume).
<i>Lentinus djamor</i> Fries.	<i>Goniiothalamus</i> sp. ( <i>Uvaria tripetala</i> Lam.).
<i>Agaricus moschocaryanus</i> Strinz.	<i>Talauma rumphii</i> Blume.
<i>Polygaster sampadarius</i> Fries.	<i>Mangifera utana</i> Ham.
<i>Pachyma tuber regium</i> Fries.	<i>Mangifera tapia</i> Ham.
<i>Pachyma hoelen</i> Fries.	<i>Dillenia serrata</i> Thunb.
<i>Pandanus repens</i> Miq.	<i>Sindora galedupa</i> Prain.
<i>Pandanus baggea</i> Miq.	<i>Actinodaphne rumphii</i> Blume.
<i>Pandanus terrestris</i> Warb.	<i>Actinodaphne moluccana</i> Blume.
<i>Freycinetia graminea</i> Blume.	<i>Canarium balsamiferum</i> Willd.
<i>Bambusa excelsa</i> Miq.	<i>Canarium hirsutum</i> Willd.
<i>Bambusa</i> ( <i>Schizostachyum</i> ) <i>longinodis</i> Miq.	<i>Canarium zephyrinium</i> Blume.
<i>Livistona bissula</i> Mart.	<i>Canarium</i> sp. ( <i>Canariopsis paucijuga</i> Miq.).
<i>Calamus graminosus</i> Blume.	<i>Canarium</i> sp. ( <i>Pimela caryophyllacea</i> Blume).
<i>Calamus rumphii</i> Blume.	<i>Osmoxylon umbelliferum</i> Merr.
<i>Calamus pisicarpus</i> Blume.	<i>Schefflera</i> sp. ( <i>Brassaia littorea</i> Seem.).
<i>Calamus buroensis</i> Mart.	<i>Panax anisum</i> DC.
<i>Calamus equestris</i> Willd.	<i>Hoya alba</i> Kostel.
<i>Calamus cawa</i> Blume.	<i>Hoya elegans</i> Kostel.
<i>Calamus acidus</i> Becc.	<i>Ipomoea rumphii</i> Miq.
<i>Daemonorops niger</i> Blume.	
<i>Alpinia uviformis</i> Horan.	
<i>Michelia tsiampacca</i> Linn.	
<i>Polyalthia</i> sp. ( <i>Uvaria ligularis</i> Lam.).	

Doubtless some of these species are represented in herbaria rich in Malayan material, but so far as published records go, such specimens have never been definitely connected with the

published species that they may represent. The importance of interpreting species based on Rumphius's descriptions from actual specimens collected as near the classical locality as possible cannot be overestimated, and the sooner the above doubtful species are definitely connected with botanical material by which their true characters can be determined, the nearer we will be to the long hoped for stable nomenclature.

#### DIFFICULTIES IN THE PROPER INTERPRETATION OF RUMPHIAN SPECIES

The difficulties involved in attempting to interpret the species described by such an author as Rumphius in terms of the binomial system are very great. The actual working up of the Amboina collection has involved two entirely different sets of identifications, first an identification with the form Rumphius described or described and figured; and, second, a further identification of the same specimen to its proper genus and species under the binomial system. Neither task has been an easy one, for very obvious reasons.

In dealing with the Rumphian descriptions, many difficulties are encountered. While often very long, the descriptions are nontechnical, and measurements are largely approximate or comparative. The parts of the flowers are not described in detail, and often they are not even mentioned. The plants described in a single chapter under a "generic" term may belong to a single genus, as the term is understood to-day, or may belong in entirely different genera in distinct or even unrelated families. Many forms are only casually described, sometimes scarcely more than mentioned, while of others the description is reduced to a general description of the wood only. Very many of these casually described species were not based on Amboina material, but on specimens transmitted to Rumphius from various parts of Asia and Malaya. To a certain degree we have succeeded definitely in placing a high percentage of the species that are amply described and figured and a fair percentage of those that are but casually mentioned, but much remains to be done on this subject.

Another factor that has rendered identifications difficult or uncertain is the figures themselves. While many of them are excellent and can be unmistakably referred to their proper species in the binomial system from an examination of the figures alone, others are very crude; some are imperfect in that they delineate only leaf specimens; some are manifestly based on material originating from entirely distinct species or even from representatives

of different genera and families, and some do not agree at all with the descriptions to which they are ascribed. As already noted the artist has frequently depicted the leaves on one scale and the attached inflorescences, flowers, or fruits, as the case may be, on an entirely different scale. Very frequently the leaves are reduced in size, while the other parts may be greatly enlarged. In consulting the Herbarium Amboinense, it should be borne in mind that Rumphius himself never saw the figures, which were drawn by various artists after he became blind (see p. 16).

Rumphius's idea of the species was not at all that of the species as understood to-day, nor can his chapter heads be considered as corresponding to the modern conception of the genus. As noted by Doctor Robinson in one of his letters to me:

Rumphius imbibed the native ideas on the relationships of plants, and did his best to improve on them. Now the natives here to-day, and I think certainly also in his time, base their opinions largely on habit and leaf characters, or perhaps on habitat; thus *mangi-mangi* covers the whole mangrove family (*Rhizophoraceae*) with *Sonneratia* thrown in. Also to the characters utilized by the natives in making identifications should be added wood characters, latex if any, taste and smell of leaves, flowers, and fruit. Neither he nor they appreciate the primary value of flowers or fruit or of compound leaves. Again the methods of distinguishing species that we use were entirely unknown to him, as they are to the natives here to-day. We are so accustomed to putting emphasis on simple versus compound and opposite versus alternate leaves; superior versus inferior ovary; and apetalous, polypetalous, and gamopetalous flowers and the number of their parts, that it is difficult to follow a man who took no count of any of these characters, except as to the compound leaves, while his opposite leaves are often opposite leaflets. He says in one place that a menispermaceous plant "maxime convenit" with what proves to be *Derris uliginosa* of the *Leguminosae*; what then about some of the other plants he described that "maxime convenit," when there is no illustration to suggest the identity of the species involved? Take the case of *Ternstroemia*, *Ichthyoctonos montana* of Rumphius. It is most excellently described and the illustration is fair, yet in this chapter he describes three forms which differ in the color of the wood and of the roots. It is incredible that in an island of this size that there can be three species of this small and characteristic genus to each of which the description can correspond so far as it goes and yet be worthy of being interpreted as three distinct species of *Ternstroemia*. There are two possible conclusions regarding it, and many other similar cases, first, that there is really only one species of *Ternstroemia* and that the differences are merely superficial; and, second, that he had in mind three really different species, not unlikely in as many different families of plants, but that the detailed description applies to one only; the other two forms briefly mentioned in this chapter are inextricable with certainty. Even if a sufficiently perfect knowledge of all the plants found in Amboina did enable us correctly to guess what was intended by the second and third forms of *Ichthyoctonos*, there is nothing in Rumphius's statements by

which the correctness of the interpretation could be checked. Again *Maucerus* is divided into "mas" and femina;" one is a *Cyrtandra*, of the *Gesneriaceae*, and the other is a *Pellionia*, of the *Urticaceae*, but he almost certainly included in the latter an equally common *Elatostema*. *Conocephalus*, of the *Moraceae*, and *Medinilla*, of the *Melastomataceae*, are placed together. It will take much critical work certainly to distinguish in the Herbarium Amboinense such dissimilar plants as *Pipturus*, of the *Urticaceae*, *Zizyphus*, of the *Rhamnaceae*, other melastomataceous plants including some species of *Medinilla*, *Celtis*, of the *Ulmaceae*, and even *Strychnos*, of the *Loganiaceae*.

Very many similar cases could be added, but the above statement clearly indicates one particular phase of the difficulties involved in the interpretation of Rumphian species.

The difficulties involved in identifying material under the binomial system have been very real. The herbarium of the Bureau of Science contains only such material as could be accumulated by actual field work and by exchanges in the past fifteen years, and while it contains a very fine series of Philippine species and much valuable material from the Indo-Malayan region generally, many species that I should like to have seen are lacking. Identifications, other than of those species already familiar to me, have been largely made by comparisons with the published descriptions, and very many such descriptions are entirely inadequate, especially those of the early authors. Whenever possible the original descriptions have been examined, but a number of works that it has been desirable or essential to examine in the course of the preparation of this manuscript are not available in Manila. In very numerous cases resource has been had to transcriptions or photographic reproductions of essential descriptions, and such data have been supplied by various botanists in Europe and America. In one form or another I have thus been able to examine nearly all of the references to Rumphius cited in this work.

In the present consideration of the Rumphian species I have departed radically from the works of previous authors. In order to make the work more generally available to botanists, the Rumphian species, so far as they can be reduced at present, are cited as synonyms under the various species and genera to which they refer, these again being arranged by families and genera in the sequence of Engler and Prantl's *Natürlichen Pflanzenfamilien*. Appended to this systematic treatment of the Rumphian species is a list under the Rumphian names arranged in the sequence of the Herbarium Amboinense, giving references to the volume, the page, and the figure under each and, so far as determinable, their binomial equivalents.

## NOMENCLATURE

In nomenclature the rules of the Vienna Botanical Congress \* have been closely followed, including the list of *nomina conservanda* as well as the supplementary list adopted by the Brussels Botanical Congress.† The sole exception in the list of *nomina conservanda* is the adoption of the generic name *Taetsia* in place of *Cordyline* for what are considered to be entirely valid reasons.

Up to the close of the last century comparatively little attention was given to the question of priority in the names of plants, and many authors accepted or changed generic and specific names at will. It is true that in a majority of cases names well established were generally accepted, but changes were often made for the most trivial reasons. In work prosecuted under these lax but easy methods of selecting names for plants, the exact identity of obscure species was a matter of relatively slight importance.

With the establishment and general acceptance of the principle of priority in selecting the names of species, it has become important, from the viewpoint of stability of nomenclature, to determine so far as possible the exact status of the species proposed by the older authors. It would admittedly be convenient if many of the names proposed by early authors could be discarded, but if we ignore the species of one author, any botanist at any time would be justified in likewise ignoring species proposed by any other author, which would result in a veritable chaotic condition in nomenclature. We can no longer look on the work of this or that author, no matter how incomplete or imperfect, as unworthy of consideration, nor can we accept Hooker's‡ dictum, regarding species proposed by such authors as Blanco, that it was undesirable to devote time to their identification.

Regarding species based on such pre-Linnean works as Rheedé's *Hortus Malabaricus* and Rumphius's *Herbarium Amboinense*, Hooker f. commends the work of Blume for the good service he has performed to the antiquarian branch of botany in interpreting Rumphian species. The general adoption of the principle of priority has emphasized the great importance of what Hooker f. characterized as the antiquarian branch of

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\* Briquet, J. *Regles internationales de la Nomenclature botanique* adoptées par le Congrès International de Botanique de Vienne 1905 (1906) 1-99.

† Actes du III<sup>m</sup>e Congrès International de Botanique, Bruxelles, 1910 1 (1910) 112-116.

‡ Hooker f. & Thomson. *Flora Indica* 1 (1855) Introductory Essay 56.

botany, and while investigations of the status of binomials proposed by the early authors will lead to necessary changes in nomenclature, and changes in the accepted names of plants are always to be regretted, yet a strict interpretation of species from a historical standpoint will correct numerous current misapplications of names and lead to the assignment of these names to the forms for which their original authors intended them.

The strict application of the rule of priority as to the specific names has resulted in many changes in nomenclature, but these changes are unavoidable, if the international code be followed. Considering the distinctly basic position occupied by the Herbarium Amboinense in Malayan botany, the fact that so many binomials based wholly on Rumphius's work have been published by various authors, and the further fact that a high percentage of the "species" so established have been unintelligible to most botanists and have hence frequently been redescribed under other names, it is rather surprising that more changes in nomenclature have not been found necessary. The conservative botanist will be shocked to learn that as a result of the present investigation of the Herbarium Amboinense such common, widely distributed, and well-known species as the pineapple, the soy bean, the cow pea, and the pomelo must receive new specific names; that such names as *Vigna luteola* Sw., *Canavalia turgida* Grah., *Pongamia glabra* Vent., and others equally well known for the last hundred years or more fall as synonyms; and that in the true mangrove trees (*Rhizophoraceae*) the specific names in current use for most species are wrongly applied.

In proposing changes in nomenclature, I have not hesitated even when such well-known species as *Glycine hispida*, *Ananas sativus*, *Citrus decumana*, and *Phaseolus unguiculatus* are involved. While objections may be voiced to the changes in nomenclature herein proposed, while individual botanists may refuse to adopt the proposed changes, and while exceptions may be taken to some of my interpretations, I cannot understand why logically the changes proposed should not be generally adopted. Each case has been critically worked out from a historical standpoint, and the accepted name is that indicated by the International Code of Botanical Nomenclature now generally accepted by most botanists. To those botanists who make their own rules and in the matter of accepting or rejecting specific names are a law unto themselves, no appeal is made, for appeal is useless. I am firmly of the opinion, however, that stability in



nomenclature can come only by adhering to definite rules and by critically working out the proper name for each species in conformity with those rules.

In one matter affecting generic nomenclature I have definitely gone on record in a previous publication.\* This is that the generic name should be maintained for the group for which it was intended by its original author, not applied to representatives of a group that was wholly unknown to the author of the generic name. *Nauclea* of Linnaeus serves as an illustration of the idea. As *Nauclea* is currently interpreted, it contains nothing that was originally placed there by Linnaeus. I have proposed to apply *Nauclea* in its original sense; that is, to the species currently placed in *Sarcocephalus* and have proposed the new name *Neonauclea* for *Nauclea* auctt., not of Linnaeus. It is to me inconceivable that a genus proposed by one author should be interpreted by others with every original species excluded. The application of this principle to some of the older genera will involve an adjustment in such a case as *Alpinia*, for the type and sole species cited in the original description of *Alpinia* is a *Renalmia*.

As a natural consequence of the acceptance of the International Rules of Botanical Nomenclature, the numerous Rumphian names adopted by O. Kuntze † as substitutes for more "recent" generic names of other authors have been wholly ignored. It is perfectly evident that Rumphius had no idea of the "genus," and his names cannot be interpreted in a generic sense. Even in the *Auctuarium*, which was published after the binomial system was established, the "generic" names certainly cannot be considered as the equivalent of the genus as understood by contemporary botanists. The binomials that appear in the *Auctuarium* (1755) are merely accidental and cannot be considered as properly "published" binomial names; Burman in his added notes occasionally cites the first edition of Linnaeus's *Species Plantarum*, but he never cites the Linnean binomial, merely the descriptive sentence. It is perfectly clear that he had no intention of publishing the Rumphian accidental binomials as binomials in the Linnean sense. It is only in his *Index Universalis* that he recognized the Linnean system. In this he reduced to binomials those Rumphian species whose status had been determined by Linnaeus and by Stickman and proposed a few new binomials.

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\* On the application of the generic name *Nauclea* of Linnaeus. *Journ. Wash. Acad. Sci.* 5 (1915) 530-642.

† *Rev. Gen. Pl.* (1891-93) CLV+1-1011.

## OVERLOOKED BINOMIALS

During the course of my work on this project I have detected an unusually large number of binomials, over one hundred, that while validly published were overlooked in compiling the data for Index Kewensis and do not appear in that work or in any of its supplements. Some of these binomials appear in works that were never indexed, such as Stickman's Dissertation on the Herbarium Amboinense (1754); and in various other works based on the Herbarium Amboinense, such as those of Henschel and of Hasskarl; while others appear in works that were indexed, but for one reason or another certain species were overlooked. The list has been deemed to be of sufficient importance to warrant publication and is accordingly here presented.

- Achyranthes chinensis* Osbeck Dagbok Ostind. Resa (1757) 205=? *A. aspera* Linn.
- Achyranthes spiciflora* Burm. Index Alt. Herb. Amb. (1769) [5]=*Acalypha amentacea* Roxb.
- Afzella rhomboidea* F.-Vill. Novis. App. Fl. Filip. (1880) 72=*Pahudia rhomboidea* Prain.
- Allaeanthus luzonicus* F.-Vill. Novis. App. Fl. Filip. (1880) 198. No combination in "Benth. et Hook. f. Gen. III. 361."
- Allophylus grossedentatus* F.-Vill. Novis. App. Fl. Filip. (1880) 51 (*Schmidelia grossedentata* Turcz.).
- Alpinia rufa* Naves Novis. App. Fl. Filip. (1880) 226 (*Hellenia rufa* Presl).
- Alpinia scabra* Naves Novis. App. Fl. Filip. (1880) 226 (*Hellenia scabra* Blume).
- Amomum hatuanum* Naves Novis. App. Fl. Filip. (1880) 224=? *Amomum aculeatum* Roxb.
- Anona sariffa* Roxb. ex Henschel Vita Rumph. (1833) 142=*Diospyros kaki* Linn. f.
- Artocarpus fretisli* Teysm. & Binn. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 189.
- Aurantium maximum* Burm. Index Univers. Herb. Amb. Auct. (1755) [16]=*Citrus maxima* (Burm.) Merr. (*C. decumana* Linn.).
- Bombax aculeatum* Linn. Syst. ed. 10 (1759) 1141=*Ceiba pentandra* Gaertn.
- Breweria alsinoides* F.-Vill. Novis. App. Fl. Filip. (1880) 143=*Jacquemontia paniculata* Hallier f.
- Briza elegans* Osbeck Dagbok Ostind. Resa (1757) 246=? *Eragrostis elegantula* Steud.
- Bromelia comosa* Linn. in Stickman Herb. Amb. (1754) 21; Amoen. Acad. 4 (1759) 130=*Ananas comosus* (Linn.) Merr. (*A. sativus* Schult. f.).
- Bulbophyllum carinatum* Naves Novis. App. Fl. Filip. (1880) 235 (*Epidendrum carinatum* Linn.).
- Bulbophyllum purpureum* Naves Novis. App. Fl. Filip. (1880) 234 (*Sarcopodium purpureum* Reichb. f.).

- Bursera* ? *nitida* F.-Vill. Novis. App. Fl. Filip. (1880) 41 (*Marignia nitida* Turcz.) = *Glycosmis cochinchinensis* Pierre.
- Cadamba nocturna* Ham. ex Henschel Vita Rumph. (1833) 157 = *Nauclea undulata* Roxb.
- Caesalpinia jayabo* Maza in Anal. Soc. Esp. Hist. Nat. 19 (1890) 234.
- Canarium indicum* Linn. Amoen. Acad. 4 (1759) 134 p. p. = *Canarium commune* Linn.
- Canarium zephyrinum* Blume Mus. Bot. 1 (1850) 217.
- Caryophyllus silvestris* Teysm. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 167 = *Eugenia caryophyllata* Thunb.
- Caryota javanica* Osbeck Dagbok Ostind. Resa (1757) 270 = *Ceratolobus javanicus* (Osbeck) Merr. (*C. glaucescens* Blume).
- Cassumbium spinosum* Ham. ex Henschel Vita Rumph. (1833) 143 = *Schleichera oleosa* (Lour.) Merr.
- Catesbaea* ? *javanica* Osbeck Dagbok Ostind. Resa (1757) 92 = *Clerodendron commersonii* Spreng.
- Citrus grandis* Osbeck Dagbok Ostind. Resa (1757) 98 = *Citrus maxima* (Burm.) Merr. (*C. decumana* Linn.).
- Citrus limonia* Osbeck Reise Ostind. China (1765) 250 (*C. limonium* Risso).
- Citrus sinensis* Osbeck Dagbok Ostind. Resa (1757) 250.
- Codiaeum bractiferum* Roxb. Fl. Ind. ed. 2, 3 (1832) 680.
- Columnnea chinensis* Osbeck Dagbok Ostind. Resa (1757) 230 = *Limnophila chinensis* (Osbeck) Merr. (*L. hirsuta* Benth.).
- Commelina chinensis* Osbeck Dagbok Ostind. Resa (1757) 242 = *Commelina nudiflora* Linn.
- Convallaria chinensis* Osbeck Dagbok Ostind. Resa (1757) 219 = *Scilla chinensis* Benth.
- Convolvulus indicus* Burm. Index Univers. Herb. Amb. Auct. (1755) [6] = *Ipomoea indica* (Burm.) Merr. (*I. congesta* R. Br.).
- Cordia tiliaefolia* Warb. in Rumphius Gedenkboek (1902) 78 (*Rumphia amboinensis* Linn., *R. tiliaefolia* Poir.).
- Costus ananassae* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 333 = *Tapeinochilus ananassae* K. Schum.
- Cryptanthus chinensis* Osbeck Dagbok Ostind. Resa (1757) 277 (quid?).
- Cucumis rumphii* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 280 = *Cucumis sativus* Linn.
- Curculigo rumphiana* Schultes Syst. 7 (1830) 757 = *Curculigo orchoides* Gaertn.
- Cycas pectinata* Ham. in Mem. Wern. Soc. 5 (1826) 322.
- Dehaasia borneensis* F.-Vill. Novis. App. Fl. Filip. (1880) 179 (*Haasia borneensis* Meisn.).
- Desmodium cumingianum* F.-Vill. Novis. App. Fl. Filip. (1880) 61 (*Dendrolobium cumingianum* Benth.).
- Dioscorea nummularifolia* Henschel Vita Rump. (1833) 183 sphalm = *D. nummularia* Lam.
- Donax canniformis* K. Schum. in Engl. Bot. Jahrb. 15 (1893) 440.
- Eleocharis dulcis* Trin. ex Henschel Vita Rumph. (1833) 186.
- Erndlia subpersonata* Giseke Prael. Ord. Nat. Pl. (1792) 252 = *Curcuma longa* Linn.
- Eroteum lanigerum* Blanco Fl. Filip. (1837) 440 = *Trichospermum lanigerum* (Blanco) Merr. (*T. trivalve* Merr.).

- Eugenia longiflora* F.-Vill. Novis. App. Fl. Filip. (1880) 86 (*Syzygium longiflorum* Presl).
- Fimbristylis cumingii* F.-Vill. Novis. App. Fl. Filip. (1882) 308=*Bulbostylis barbata* Kunth.
- Flindersia radulifera* Spreng. Gesch. Bot. 2 (1818) 76 ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 206=*Flindersia amboinensis* Poir.
- Govantesia malulucban* Llanos in Rev. Progr. Cienc. 15 (1865) 191=*Champereia manillana* (Blume) Merr.
- Guatteria rumphii* Blume ex Henschel Vita Rumph. (1833) 153=*Polyalthia* sp.
- Habenaria cordata* Naves Novis. App. Fl. Filip. (1880) 250, non R. Br.,=*Habenaria diphylla* Dalz.
- Hapaloceras* ? *arupa* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 193=*Payena leerii* Kurz.
- Hibiscus convolvulaceus* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 74=*Hibiscus surattensis* Linn.
- Hibiscus haenkeanus* F.-Vill. Novis. App. Fl. Filip. (1880) 25=*Abelmoschus haenkeanus* Presl.
- Homalium aranga* Vidal ex F.-Vill. Novis. App. Fl. Filip. (1880) 94, in syn.=*Homalium luzonicum* F.-Vill.
- Hypoestes cumingiana* F.-Vill. Novis. App. Fl. Filip. (1880) 157. No combination in "Benth. et Hook. f. Gen. II. 122."
- Ichnocarpus acuminatus* F.-Vill. Novis. App. Fl. Filip. (1880) 131=*Aganosma acuminata* G. Don.
- Ichnocarpus macrocarpus* F.-Vill. Novis. App. Fl. Filip. (1880) 131=*Aganosma macrocarpa* A. DC.
- Ichnocarpus velutinus* F.-Vill. Novis. App. Fl. Filip. (1880) 131=*Aganosma velutina* A. DC.
- Lagerstroemia chinensis* Linn. Amoen. Acad. 4 (1759) 137=*Lagerstroemia indica* Linn.
- Lagurus paniculatus* Linn. ex Burm. f. Fl. Ind. (1768) 30=*Andropogon nardus* Linn.
- Legnotis lanceolata* Blanco Fl. Filip. (1837) 445=*Decaspermum paniculatum* Kurz.
- Macanea arborea* Blanco Fl. Filip. (1837) 431=*Alphonsea arborea* (Blanco) Merr. (*A. philippinensis* Merr.).
- Macrolobium amboinense* Teysm. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 189=*Intsia bijuga* O. Kuntze.
- Mangifera utana* Ham. in Mem. Wern. Soc. 5 (1826) 326.
- Medinilla lagunae* Vidal ex F.-Vill. Novis. App. Fl. Filip. (1880) 89, descr.
- Melaleuca trinervis* Ham. ex Henschel Vita Rumph. (1833) 145=*Melaleuca leucadendra* Linn.
- Melia parasitica* Osbeck Dagbok Ostind. Resa (1757) 277=? *Lansium domesticum* Correa.
- Mespilus sylvestris* Burm. Index Univers. Herb. Amb. Auct. (1755) [14]=? *Carissa carandas* Linn.
- Mespilus sylvestris* Burm. Index Univers. Herb. Amb. Auct. (1755) [18]=*Flacourtia indica* (Burm.) Merr.
- Milium zonatum* Llanos Frag. Pl. Filip. (1851) 24=*Eriochloa ramosa* O. Kuntze.
- Melochia indica* A. Gray ex F.-Vill. Novis. App. Fl. Filip. (1880) 29=*Melochia umbellata* Stapf.

- Mimosa chinensis* Osbeck Dagbok Ostind. Resa (1757) 233=*Albizzia chinensis* (Osbeck) Merr. (*A. stipulata* Boiv.).
- Momordica indica* Linn. in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132=*Momordica charantia* Linn.
- Monarda chinensis* Osbeck Dagbok Ostind. Resa (1757) 240 (quid?).
- Moringa domestica* Ham. in Mem. Wern. Soc. 5 (1826) 268, 371=*Moringa oleifera* Lam.
- Muntingia bartramia* Linn. Amoen. Acad. 4 (1759) 124=*Commersonia bartramia* (Linn.) Merr. (*C. platyphylla* Anders.).
- Muraya scandens* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 233=*M. paniculata* Jack.
- Nauclea elegans* Teysm. & Binn. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 100=*Anthocephalus macrophyllus* Havil.
- Negretia pruriens* Blanco Fl. Filip. ed. 2 (1845) 441=*Mucuna pruriens* DC.
- Oberonia ancipita* Naves Novis. App. Fl. Filip. (1880) 230 (sphalm! *O. anceps* Lindl.).
- Octomeles moluccana* Teysm. & Binn. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 208=*Octomeles sumatrana* Miq.
- Orchis lanigera* Blanco Fl. Filip. (1837) 671=*Rhynchosia retusa* Blume.
- Osmelia philippica* F.-Vill. Novis. App. Fl. Filip. (1880) 93 (*Stachycrater philippinus* Turcz., *Osmelia philippinensis* Benth.).
- Panax rumphii* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 78=*Nothopanax tricochleatum* Miq.
- Pancratium narbonense* Linn. in Stickman Herb. Amb. (1754) 28=*Eurycles amboinensis* Lindl.
- Panicum philippinum* F.-Vill. Novis. App. Fl. Filip. (1882) 312=*Axonopus semialatus* Hook. f.
- Panicum tuberosum* Llanos Frag. Pl. Filip. (1851) 41=*Panicum repens* Linn.
- Panicum vulpinum* Linn. Amoen. Acad. 4 (1759) 134=*Setaria flava* Kunth.
- Pepo indicus* Burm. Index Univers. Herb. Amb. Auct. 7 (1755) [6]=*Cucurbita pepo* Linn.
- Phaseolus cylindricus* Linn. Amoen. Acad. 4 (1759) 132=*Vigna cylindrica* (Linn.) Merr.
- Pholidocarpus rumphii* Meisn. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 12=*Pholidocarpus ihur* Blume.
- Phytolacca* ? *javanica* Osbeck Dagbok Ostind. Resa (1757) 276=*Terminalia catappa* Linn.
- Pimelandra disticha* F.-Vill. Novis. App. Fl. Filip. (1880) 123=*Ardisia disticha* A. DC.
- Platanthera horsfieldii* Naves Novis. App. Fl. Filip. (1880) 251 (*Peristylus gracilis* Blume).
- Plumbago indica* Linn. in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 133 (*P. rosea* Linn., 1762).
- Polyscias cumingiana* F.-Vill. Novis. App. Fl. Filip. (1880) 102 (*Paratropia cumingiana* Presl).
- Pterocaulon redolens* F.-Vill. Novis. App. (1880) 116.
- Pycnanthemum decurrens* Blanco Fl. Filip. ed. 2 (1845) 333=*Hyptis capitata* Jacq.
- Randia racemosa* F.-Vill. Novis. App. Fl. Filip. (1880) 108 (*Stylacoryne racemosa* Cav.).
- Ratonia montana* F. Vill. Novis. App. Fl. Filip. (1880) 52=*Arytera montana* Blume.

- Ratonia rufescens* F.-Vill. Novis. App. Fl. Filip. (1880) 52 (*Zygolepis rufescens* Turcz.) = *Arytera litoralis* Blume.
- Rhizophora longissima* Blanco Fl. Filip. (1837) 278 = *R. mucronata* Lam.
- Ricinus ruber* Miq. Fl. Ind. Bat. 1<sup>a</sup> (1858) 390 = *Ricinus communis* Linn.
- Samyda trivalvis* Blanco Fl. Filip. (1837) 374 = *Casearia*.
- Sarcochilus centipeda* Naves Novis. App. Fl. Filip. (1880) 238 (*Thrixspermum centipeda* Lour.).
- Sarcochilus tenuifolius* Naves Novis. App. Fl. Filip. (1880) 238 (*Epidendrum tenuifolium* Linn.).
- Saurauia elegans* F.-Vill. Novis. App. Fl. Filip. (1880) 19 (*Scapha elegans* Choisy, *Saurauia rugosa* Turcz.).
- Solidago chinensis* Osbeck Dagbok Ostind. Resa (1757) 241 = *Wedelia calendulacea* Less.
- Spermacece discolor* F.-Vill. Novis. App. Fl. Filip. (1880) 113 (*Borreria discolor* DC.).
- Tapeinochilus ananassae* K. Schum. in Engl. Bot. Jahrb. 27 (1899) 249.
- Tetradapa javanorum* Osbeck Dagbok Ostind. Resa (1757) 93 = *Erythrina indica* Lam.
- Timonius nitidus* F.-Vill. Novis. App. Fl. Filip. (1880) 109 (*Petesia nitida* Bartl.).
- Timonius ternifolius* F.-Vill. Novis. App. Fl. Filip. (1880) 109 (*Petesia ternifolia* Bartl.).
- Torenia glabra* Osbeck Dagbok Ostind. Resa (1757) 210 (*Torenia benthamiana* Hance).
- Tragia scandens* Linn. in Stickman Herb. Amb. (1754) 12, Amoen. Acad. 4 (1759) 128 = *Tetracera scandens* (Linn.) Merr. (*Tetracera sarmen-tosa* Vahl).
- Tylophora bifida* F.-Vill. Novis. App. Fl. Filip. (1880) 134 (*Oxystelma bifidum* Llanos).
- Vallisneria sphaerocarpa* Blanco Fl. Filip. (1837) 780 = *Enhalus acoroides* Steud.
- Varneria augusta* Linn. Amoen. 4 (1759) 136 = *Gardenia augusta* (Linn.) Merr. (*G. florida* Linn.).
- Verbesina aquatica* Burm. Index Alt. Herb. Amb. (1769) [18] = *Wedelia biflora* DC.
- Zizyphus littorea* Teysm. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 176 = *Ximenia americana* Linn.

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We are under great obligations to the Dutch colonial officials for various courtesies extended to Doctor Robinson, but more especially are we indebted to Dr. J. C. Koningsberger, director of the botanic garden at Buitenzorg, Java, and to Dr. J. J. Smith of the same institution for their interest in the Amboina project and their hearty coöperation. Through their interest Doctor Robinson was supplied with a copy of the Herbarium Amboinense for his use during the period of his field work in Amboina, with a portion of his field equipment, and with the services of the *mantri* Mardjoeki, a Javanese assistant, who aided in the field work and had general oversight of the

drying of all material collected. I am also indebted to Doctor Koningsberger for the original map of Amboina, on which the one presented herewith was based, and for numerous specimens representing species not available in Manila, but which it was desirable to examine.

Assistance has been had from several specialists in the preparation of this report. The treatment of the *Marantaceae*, of the *Zingiberaceae*, and of *Heliconia*, in the *Musaceae*, as presented in this work, is that of Doctor Th. Valeton; the *Orchidaceae* is the work of Doctor J. J. Smith. The other groups have been worked up by me, but I have had the assistance of various specialists in certain families. The *Pteridophyta* have been determined by Captain C. R. W. K. van Alderwereldt van Rosenberg, of Buitenzorg.\* The *Pandanaceae* were determined by Doctor U. Martelli, Florence, Italy; the *Palmae* by Doctor O. Beccari, Florence, Italy; the *Bambusae* by J. Sykes Gamble, esq., East Liss, England; the *Piperaceae* by Mr. C. de Candolle, Geneva, Switzerland; and the *Sapindaceae* by Doctor L. Radlkofer, Munich, Germany. Doctor Th. Valeton has assisted me in the identification of the *Rubiaceae*, while Mr. F. S. Collins, North Eastham, Massachusetts, has identified the algae and has kindly supplied me with extracts from books not available in Manila regarding the Rumphian species of this group. Mr. I. H. Burkill, director of the Botanic Garden, Singapore, has supplied me with critical notes regarding *Dioscoreaceae*. To Doctor Walter T. Swingle, Washington, D. C., I am indebted for a photostat copy of Burman's "Index alter," a work not available in Manila and of which I was unable to secure a copy; to Mr. F. V. Coville, Mr. P. L. Richer, and Mr. S. C. Stuntz, of the United States Department of Agriculture, I am indebted for typewritten or photostat copies of numerous original descriptions not available in Manila; to Doctor George T. Moore, director of the Missouri Botanical Garden, St. Louis, Missouri, for the loan of certain books; to Sir David Prain and Mr. A. W. Hill, of the Kew gardens, London, England, and to Doctor A. B. Rendle, of the British Museum, for copies of descriptions and for critical notes on various type specimens. To all of these gentlemen I wish to express my thanks for assistance rendered, without which the present consideration of the Rumphian species must of necessity have been less complete and more inexact than it is.

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\* The Amboina Pteridophyta collected by C. B. Robinson. *Philip. Journ. Sci.* 11 (1916) *Bot.* 101-123, t. 5, 6.





# SYSTEMATIC ENUMERATION

## THALLOPHYTA

Rumphius described a small number of thallophytes, and fortunately but few of the forms he described and figured have been made the types of species under the binomial system. The algae are represented by some of the more prominent forms, such as *Sargassum*, *Turbinaria*, and a few of the *Rhodophyceae*, but, in all, Rumphius characterized and named only about a dozen species of this group; none of these have been made the types of species under the binomial system. Of the fungi more numerous forms were described and figured, about twenty-five being characterized. Some of these are wholly unrecognizable from the descriptions alone, while the identity of others is perfectly evident. About ten of the forms Rumphius described have been made the types of species under the binomial system, most of these binomials typified by Rumphius's figures and descriptions being proposed by Fries. In the lichens but two forms were described; both are apparently referable to *Usnea*.

In the *Bryophyta* not a single species was described, unless some of the pendant epiphytic mosses and hepatics were included in the rather generalized description of *Muscus capillaris* Rumph. Herb. Amb. 6: 89, t. 40, f. 2; the figure, and the description at least for the most part, refers to *Usnea* rather than to any of the bryophytes.

### ALGAE \*

#### CHLOROPHYCEAE

##### CHAETOMORPHA Kützinger

##### CHAETOMORPHA JAVANICA Kütz.

*Capillus nympharum* Rumph. Herb. Amb. 6: 90, 179.

Rumphius's description applies to *Chaetomorpha*, but the form he had might be either *C. javanica* Kütz. or the allied *C. brachygona* Harv. (Ayer putri, *Rel. Robins.* 2393, locally known as *lumu-lumu*), which Doctor Robinson states is "not unlikely *Capillus nympharum*." Martens states that it is an "Algen aus

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\* In the following consideration of the algae described by Rumphius, the reductions in general follow G. von Martens in *Die Preussische Expedition nach Ost-Asien. Botanische Theil. Die Tange* (1866-68) 1-152, t. 1-8. I am indebted to Mr. F. S. Collins, of North Eastham, Massachusetts, for copies of passages in Martens's work pertaining to the Herbarium Amboinense and for identifying the Amboina algae collected by Doctor Robinson.

der Familie Conferven und, der Localität nach zu schleissen, zunächst *Chaetomorpha javanica* Kütz., welche mein Sohn an der angegebene Stelle weider gesammelt hat."

## RHODOPHYCEAE

### GELIDIUM Lamouroux

#### GELIDIUM AMANSII Kütz.

*Muscus gelatinus japonensis* Rumph. Herb. Amb. 6: 90.

In the text, page 88, t. 40, f. 3, is referred to *Muscus gelatinus japonensis*, and this figure is placed with the description by Hasskarl, Neue Schlüssel (1866) 167; to me the figure looks distinctly like *Gracilaria lichenoides* (Linn.) Harv. Martens refers the figure to *Chaetomorpha javanica* Kütz., where it certainly does not belong. Henschel referred the description and the figure to *Sphaerococcus gelatinus* Ag., while Hasskarl suggested that both might be referable to *Eucheuma spinosum* Ag. Martens states that the species, as described, "ist sicher das von Siebold aus Japan mitgebracht *Gelidium Amansii* Kütz., aber Rumph. scheint verschiedene andere heterogene Gegenstände nicht gehörig davon zu unterscheiden."

### HIMANTHALIA Lyngbye

#### HIMANTHALIA LOREA (Linn.) Lyngb.

*Bodelha altera* Rumph. Herb. Amb. 6: 187.

This is scarcely more than mentioned by Rumphius as growing on the coasts of Spain and Portugal. The reduction follows Martens.

### GRACILARIA Greville

#### GRACILARIA LICHENOIDES (Linn.) Harv.

*Sphaerococcus lichenoides* Ag.

*Alga coralloides* I Rumph. Herb. Amb. 6: 181, t. 74, f. 3, t. 76, f. A-C.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb. 573*, November 5, 1913, on coral in shallow water.

Loureiro, Fl. Cochinch. (1790) 686, referred this to *Lichen rocella* Lour., which is an entirely erroneous disposition of it, whatever Loureiro's species may prove to be. It has been referred by various authors to *Fucus edulis* Gmel. and to *Sphaerococcus lichenoides* Agardh, the former a synonym of the latter. Martens considers it to be *Sphaerococcus lichenoides* Agardh = *Gracilaria lichenoides* Harv. The illustration given on t. 40, f. 3, referred in the text to *Muscus gelatinus japonensis*, and by Martens referred to *Capillus nymphaeum* Rumph. = *Chaetomorpha javanica* Kütz., very much better agrees with named

specimens of *Gracilaria lichenoides* (Linn.) Harv., than do the figures cited above, t. 74, f. 3, t. 76, f. A-C.

## PHAEOPHYCEAE

## SARGASSUM Agardh

## SARGASSUM POLYCYSTUM J. Ag.

*Acetabulum marinum* Rumph. Herb. Amb. 6: 185, t. 76, f. 1.

This was referred by Burman f., Fl. Ind. (1768) 239, to *Fucus natans* Linn., where it manifestly does not belong; Henschel referred it to *Sargassum amboinicum* "Rumph."; and Hasskarl, Neue Schlüssel (1866) 181, placed it under *Sargassum myriocystum* J. Ag. The present reduction follows Martens.

## SARGASSUM BACCIFERUM Ag.

*Sargassum pelagicum* Rumph. Herb. Amb. 6: 188, t. 76 f. 2.

Linnaeus originally reduced this to *Fucus natans* Linn., in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1345; Burman f., Fl. Ind. (1768) 239, placed it under *Fucus granulatus* Linn.; and Henschel placed it under *Sargassum bacciferum* Agardh, where it properly belongs. The only forms of *Sargassum* collected by Doctor Robinson in Amboina are referable to *S. binderi* Sonder.

## SARGASSUM AQUIFOLIUM (Turn.) J. Ag.

*Agarum III funiculare s. foliatum* Rumph. Herb. Amb. 6: 186.

In the very short description given by Rumphius three distinct forms are mentioned and casually described. According to Martens the first one is *Carpacanthus herbaceus* Kütz.=*Sargassum aquifolium* J. Ag. He suggests that the other forms may be referable to *Sargassum granuliferum* Agardh.

## SARGASSUM FLAVIFOLIUM Kütz.

*Sargasso s. Wier* Rumph. Herb. Amb. 6: 167.

This is briefly mentioned as growing along the coasts of Spain and Portugal. The reduction follows Martens.

## TURBINARIA Lamouroux

## TURBINARIA ORNATA (Turn.) J. Ag.

*Acetabulum marinum infundibuliforme* Rumph. Herb. Amb. 6: 185.

AMBOINA, Paso, Robinson, Pl. Rumph. Amb. 576, October 29, 1913, washed ashore, locally known as *arien*.

Henschel placed this under *Sargassum turbinatum* Agardh, but Hasskarl, Neue Schlüssel (1866) 181, and Martens placed

it under *Turbinaria ornata* (Turn.) J. Ag., quoting J. Agardh Sp. Alg. 1: 266. This is manifestly the correct disposition of it.

#### TURBINARIA sp.?

*Acetabulum marinum* e Macassar Rumph. Herb. Amb. 6: 186.

Hasskarl, Neue Schlüssel (1866) 181, thought that this might be referable to *Turbinaria vulgaris* J. Ag., var. *conoidea* J. Ag., but Martens expresses the opinion that it might perhaps be the same as *Chauvinia macrophysa* Kütz.=*Caulerpa racemosa* var. *clavifera* forma *macrophysa* (Kütz.) Weber. The description is very short and indefinite.

#### FUCUS Linnaeus

##### FUCUS VESICULOSUS Linn.

*Bodelha* Rumph. Herb. Amb. 6: 187.

The common rock weed is briefly mentioned by Rumphius as growing on the coasts of Spain and Portugal.

#### MASTOCARPUS Kützing

##### MASTOCARPUS KLENZEANUS Kütz.

*Agarum* II s. *bracteatum* Rumph. Herb. Amb. 6: 186.

Henschel referred this to *Fucus bracteatus* Ag., where it certainly does not belong. Martens considers that it is certainly referable to *Mastocarpus klenzeanus* Kütz.

#### ALGAE OF ENTIRELY DOUBTFUL STATUS

*Alga coralloides sinensium* Rumph. Herb. Amb. 6: 90.

This is scarcely more than casually mentioned, and the identity of the plant intended is entirely problematical, other than that it is a marine alga.

*Agarum lactucarium* Rumph. Herb. Amb. 6: 186.

The brief description includes several entirely different forms of *Rhodophyceae*, none of which are certainly determinable. Martens suggests that the last mentioned may be *Hypnea divaricata* J. Ag.

*Agarum corticosum* Rumph. Herb. Amb. 6: 187.

This is wholly indeterminable from data at present available, and no author has as yet suggested a possible reduction of it. The description is very brief and imperfect.

#### FUNGI

##### LENTINUS Fries

**LENTINUS SAJOR CAJU** Fries Epicr. (1836-38) 393 (type!).

*Agaricus sajor caju* Fries Syst. 1 (1821) 175 (type!).

*Boletus primus* Infundibull forma [figura] Rumph. Herb. Amb. 6: 125, t. 56, f. 1.

AMBOINA, Gelala, Robinson Pl. Rumph. Amb. 571, September 19, 1913, on old tree trunks, altitude about 175 meters.

The Rumphian figure and description are the whole basis of *Lentinus sajor caju* Fries, the species apparently having been generally interpreted correctly, as the figure is quite characteristic. Philippine material referred by Bresadola to *Lentinus sajor caju* differs but slightly from the Amboina specimen cited above. The form briefly described in the second paragraph, indicated by Hasskarl as *forma altera varietas*, while undoubtedly a *Lentinus*, may or may not be the same as *Lentinus sajor caju* Fries.

**LENTINUS TUBER REGIUM** Fries Epicr. (1836-38) 392 (type!); Saccardo Syll. Fung. 1 (1887) 604.

*Agaricus tuber regium* Fries Syst. 1 (1821) 174 (type!).

**Tuber regium** Rumph. Herb. Amb. 6: 120, t. 57, f. 4 (cf. *Pachyma tuber regium* Fries p. 61).

A species imperfectly understood, based wholly on Rumphius's figure and description, although perhaps correctly interpreted by Hennings.\* The subterranean portion of *Tuber regium*, as figured and described by Rumphius, is *Pachyma tuber regium* Fries, a species of wholly doubtful status (see p. 61), and is apparently nothing but a pseudo-sclerotium of *Lentinus tuber regium* Fries.†

**LENTINUS DJAMOR** Fries Epicr. (1836-38) 395 (type!).

*Agaricus djamor* Fries Syst. 1 (1821) 185 (type!).

**Boletus** II *arboreus* Rumph. Herb. Amb. 6: 125, t. 56, f. 2, 3.

A species known only from Rumphius's description and rather crude figures, but probably correctly placed in the genus *Lentinus*.

#### MARASMIUS Fries

**MARASMIUS** sp.

**Cassutha cornea** Rumph. Herb. Amb. 7: 52.

Rumphius's description applies to a plant that can hardly be other than the mycelium of one of the horsehair blights, *Marasmius* sp., for a general consideration of which see Petch.‡ Burman f., Fl. Ind. (1768) 93, referred it to *Cassytha corniculata* Burm. f., a species described and figured from Javan specimens, and which is perhaps a species of *Galeola* of the *Orchidaceae*. Linnaeus, Mant. 2 (1771) 237, repeats Burman's description under *Cassytha corniculata*, the reduction being cited by Loureiro, Murray, Lamareck, and Willdenow. Miquel, Fl. Ind. Bat. 1<sup>1</sup>

\* Engl. & Prantl. Nat. Pflanzenfam. 1<sup>1</sup>: 225; see Lloyd, Myc. Notes 47 (1917) 666, fig. 959.

† See Petch, T. The Pseudo-sclerotia of *Lentinus similis* and *Lentinus infundibuliformis*. Ann. Bot. Gard. Peradeniya 6 (1915) 1-17, t. 1.

‡ Horse-hair blights. Ann. Bot. Gard. Peradeniya 6 (1915) 43-68, t. 2-7.

(1858) 977, correctly excluded *Cassytha corniculata* Burm. f. from the *Lauraceae*. Hasskarl, Neue Schlüssel (1866) 191, states: "Mihi *Rhizomorpha* aut *Mycelium* fungi cujusdam esse videtur."

# GANODERMA Karsten

**GANODERMA AMBOINENSE** (Lam.) Pat. in Bull. Soc. Bot. Fr. 5 (1889) 70.

*Agaricus amboinensis* Lam. Encycl. 1 (1783) 51 (type!).

*Polyporus amboinensis* Fries Syst. Mycol. 1 (1821) 354 (type!).

*Fomes amboinensis* Fries Epicr. (1836-38) 442 (type!).

**Fungus elatus cochlearis** Rumph. Herb. Amb. 6: 129, t. 57, f. 1.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb.* 572, altitude about 400 meters.

The Rumphian figure and description are the whole basis of all the synonyms cited above. This is not *Ganoderma amboinense* (Lam.) Pat. as currently interpreted, but is apparently a form of *Ganoderma rugosum* (Bl. & Nees) Bres. In this connection it is to be noted that Rumphius figures *Fungus elatus cochlearis* with a long stipe and definitely states regarding it: "petiolo longo & tenui, spithamam vel pedam circiter longo," which includes no character of *Ganoderma amboinense* as currently interpreted. The figure shows a specimen with a lateral pileus, while *Ganoderma rugosum* Bres. usually has a central stipe. Of Robinson's material, cited above, one specimen has a central stipe, and one, the pileus injured, has a lateral stipe. I have little hesitation in interpreting true *Ganoderma amboinense* (Lam.) Pat. as the form currently known as *Ganoderma rugosum* Bres. From this I do not think that *Fungus elatus primus* Rumph. and *Fungus elatus petasoides* Rumph., described in the preceding paragraph, can be distinguished.

**GANODERMA COCHLEAR** (Nees) comb. nov.

*Polyporus cochlear* Nees in Nov. Act. Acad. Nat. Cur. 13: 20, t. 6.

*Ganoderma amboinense* auct. plur., non *Agaricus amboinensis* Lam., nec *Polyporus* vel *Fomes amboinensis* Fries.

**Fungus elatus digitatus** Rumph. Herb. Amb. 6: 129, t. 57, f. 2, 3, et, s. n., t. 57, f. E.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 610, August 30, 1913, on dead trees at low altitudes.

It is very evident from an examination of the original descriptions that *Ganoderma amboinense* Pat. has been wrongly interpreted by recent authors—Patouillard, Murrill, Sydow, and Bresadola—for the Rumphian figure and description, on which *Ganoderma amboinense* is based, is undoubtedly the form currently known as *Ganoderma rugosum* Bres. I am of the

opinion, however, that *t.* 57, *f.* 2, 3, represent juvenile forms of a *Ganoderma*, probably *G. cochlear* as here interpreted, and that figure *E*, described by Burman as “tam cochlearis, quam digitati species est ex utrisque mixta,” belongs with *Ganoderma cochlear* (Nees) Merr.; that is, it is *Ganoderma amboinense* auct., non (Lam.) Pat. Lamarck considered figures 2 and 3 to represent a variety of his *Agaricus amboinensis*. Loureiro, Fl. Cochinch. (1790) 694, erroneously reduced these figures to *Helvella mitra* Linn., which is a totally different plant. It is not certain whether or not *Polyporus pisachapanni* Nees is distinct from *Ganoderma cochlear* (Nees) Merr.

#### FAVOLUS Fries

##### FAVOLUS sp.

*Fungus arboreus* III Rumph. Herb. Amb. 6: 128.

The description is unmistakably referable to *Favolus* or some very closely allied genus, such as *Hexagonia*, as indicated by the brief description of the lower surface as “subtus autem in varias cellulas & tessaras distincta est instar favorum Apium.”

#### POLYSTICTUS Fries

**POLYSTICTUS SANGUINEUS** (Linn.) Nees in Mey. Prim. Fl. Esseq. (1818) 304.

*Boletus sanguineus* Linn. Sp. Pl. ed. 2 (1763) 1646.

*Fungus arboreus* II (ruber) Rumph. Herb. Amb. 6: 128.

The phrase “utrimque rubra,” together with the few other characters given in the very short description, definitely refers the form Rumphius described to the strongly marked *Polystictus sanguineus* Nees.

#### POLYPORUS Micheli

##### POLYPORUS sp.

*Fungus arboreus* II (albus) Rumph. Herb. Amb. 6: 128.

The brief description applies to *Polyporus* or to one of the very closely allied genera. There is nothing sufficiently definite in the description to warrant even a guess at its identity.

##### POLYPORUS sp.

*Fungus arboreus* I Rumph. Herb. Amb. 6: 127.

Indeterminable from the data given by Rumphius, other than that it is referable to *Polyporus*, *sensu latiore*, or to one of the very closely allied genera that have been segregated from it. Both *Polyporus lucidus* Fries and *P. amboinensis* Fries=*Ganoderma amboinense* Pat. have been suggested for the Rumphian species.

## AGARICUS Linnaeus

AGARICUS MOSCHOCARYANUS Streinz Nomencl. Fung. (1861) 70 (type!).

*Boletus moschocaryanus* Rosenthal Syn. Pl. Diaphor. (1862) 31 (type!).

*Boletus moschocaryanus* Rumph. Herb. Amb. 6: 124.

From Rumphius's description this can scarcely be an *Agaricus*, but is more probably a *Lentinus*. Rumphius describes it as an edible fungus growing on *Myristica* trees. Its status as a species is quite unknown.

## HIRNEOLA Fries

HIRNEOLA AURICULA JUDAE (Fries) Berk. Outl. (1860) 289.

*Tremella auricula* Linn. Sp. Pl. (1753) 1157.

*Exidia auricula judae* Fries Syst. 2 (1823) 221.

*Boletus V auris murina* Rumph. Herb. Amb. 6: 126, t. 56, f. 4.

This was placed by Loureiro, Fl. Cochinch. (1790) 695, under *Peziza auricula* Lour. It can scarcely be other than the common and widely distributed *Hirneola auricula judae* Berk.

## AGARICACEAE sp.

*Boletus saguarius* Rumph. Herb. Amb. 6: 124.

The genus of this is uncertain, but it manifestly belongs in the *Agaricaceae*. Rumphius describes it as edible and as growing on the decaying waste from the trunks of sago palms from which the sago has been extracted.

## AGARICACEAE sp.

*Boletus II umbraculiforma* Rumph. Herb. Amb. 6: 126.

All that can be said regarding this form is that it belongs in the *Agaricaceae*, possibly in the genus *Agaricus*. It is one of the edible forms.

## AGARICACEAE sp.

*Boletus IV terrestris* Rumph. Herb. Amb. 6: 126.

Of wholly doubtful status other than that it belongs in the *Agaricaceae*.

## AGARICACEAE sp.

*Fungus igneus* Rumph. Herb. Amb. 6: 130, t. 56, f. 5.

The description is not sufficiently definite to warrant even a guess as to the genus the plant pertains to, and the figure is very poor. It is nonedible and is stated by Rumphius to be poisonous.

## LYCOPERDON Tournefort

## LYCOPERDON sp.

*Crepitus lupi verus* Rumph. Herb. Amb. 6: 131.



*Lycoperdon* is the suggested reduction of this by Hasskarl, which may be the correct disposition of it. *Fungus arborum tuberosus* Rumph., Herb. Amb. 6: 130, also may be possibly referable to the same genus. Beyond a surmise as to the genus, no further reduction can be suggested from data at present available.

#### DICTYOPHORA Desvaux

DICTYOPHORA PHALLOIDEA Desv. Journ. Bot. 2 (1809) 88.

*Hymenophallus indusiatus* Vent. in Mém. Inst. Nat. Sci. 1 (1789) 520.

*Phallus daemonum* Fries Syst. Mycol. 2 (1823) 283 (type!).

*Hymenophallus daemonum* Spreng. Syst. 4 (1827) 498 (type!).

*Dictyophora speciosa* Klotzsch. in Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 1: 239, t. 6.

*Phallus daemonum* Rumph. Herb. Amb. 3: 218; 6: 131, t. 56, f. 7.

The Rumphian figure is the type of *Phallus daemonum* Fries and of *Hymenophallus daemonum* Spreng., and it is certainly the same as *Dictyophora phalloidea* Desv. Loureiro, Fl. Cochinch. (1790) 694, erroneously reduced it to *Phallus impudicus* Linn. Ventenat's specific name is the oldest one, but no change is here proposed in the nomenclature of the species.

#### POLYGASTER Fries

POLYGASTER SAMPADARIUS Fries Syst. Mycol. 2 (1823) 295 (type!).

*Tuber sampadarium* Rumph. Herb. Amb. 6: 123.

Loureiro, Fl. Cochinch. (1790) 697, referred *Tuber sampadarium* Rumph. to *Lycoperdon glomeratum* Lour., a species based on Cochin-China specimens. There is no evidence that the form Loureiro described is the same as the one Rumphius considered. The Rumphian description typifies *Polygaster sampadarius* Fries, a species of very doubtful status. Fischer, in Engler & Prantl Nat. Pflanzenfam. 1<sup>1</sup> \*\* (1899) 399, places *Polygaster* as a doubtful genus under the *Plectobasidiineae* (*Sclerodermineae*).

#### PACHYMA Fries

PACHYMA TUBER REGIUM Fries Syst. Mycol. 2 (1823) 243 (type!).

*Tuber regium* Rumph. Herb. Amb. 6: 120, t. 57, f. 4.

The genus *Pachyma* Fries is one of doubtful status, although there is little doubt that *Pachyma tuber regium* Fries is nothing but a pseudo-sclerotium of *Lentinus tuber regium* Fries (see *Lentinus tuber regium* Fries, p. 57).

PACHYMA HOELEN Fries Syst. Mycol. 2 (1823) 243 (type!).

*Hoelen* Rumph. Herb. Amb. 6: 122.

Rumphius's description of *Hoelen* was based on material originating in China. It is the whole basis of *Pachyma hoelen* Fries and, like *Pachyma tuber regium* Fries, is of doubtful status. It is cultivated on pine trees in various parts of China\* and has been referred to *Pachyma cocos* Fries. Specimens of *fulin*, kindly secured for me by Mr. W. J. Tutcher in a Chinese drug store in Hongkong, agree closely with the excellent figures of *Pachyma cocos* Fries given by Currey in Trans. Linn. Soc. 23 (1860) t. 10, f. 5, 6, 9. A part of Mr. Tutcher's specimen was sent to Dr. W. A. Murrill, of the New York Botanical Garden, who states that he has sclerotia of the same general type from different localities in America, but that the only method of distinguishing them accurately is to develop the fruiting form. In some cases the fruiting form proves to be species of *Polyporus*, in others species of *Lentinus*. He expresses the opinion that *Pachyma hoelen* Fries is distinct from *P. cocos* Fries.

#### FUNGUS indet.

*Muscus frutescens* III *muscagineus* Rumph. Herb. Amb. 6: 87.

The description apparently applies to the mycelium of some fungus, but the status of *Muscus frutescens muscagineus* is wholly indeterminable.

### LICHENES

#### USNEA Linnaeus

##### USNEA sp.

*Barba saturni* Rumph. Herb. Amb. 6: 88.

Henschel thought that this might be a species of *Lycopodium*, which is an impossible reduction of it. Hasskarl, Neue Schlüssel (1866) 167, states "*Usneae* aut gen. aff. *Lichenum* spec. quadam." The form described is probably an *Usnea*.

##### USNEA sp.

*Muscus capillaris* Rumph. Herb. Amb. 6: 89, t. 40, f. 2.

Linnaeus, in Stickman Herb. Amb. (1754) 27, Amoen. Acad. 4 (1759) 135, Syst. ed. 10 (1759) 975, erroneously reduced this to *Renealmia usneoides* Linn., which is the American *Tillandsia usneoides* Linn., of the *Bromeliaceae*. Burman f., Fl. Ind. (1768) 239, cites it under *Lichen capillaris* Burm. f., of which, however, it is scarcely the type. Loureiro, Fl. Cochinch. (1790) 171, discusses it under *Grammica aphylla* Lour. = *Cuscuta chinensis* Lam. and definitely refers it, op. cit. 687, to *Lichen usnea* Linn. Rumphius's description perhaps includes more than an *Usnea*,

\* Shaw, N. Chinese Forest Trees and Timber Supply (1914) 39, 295.

possibly pendant epiphytic mosses and hepatics, but his figure, and his description at least in most part, apparently refers to *Usnea* or to some very closely allied genus. His material was from the higher mountains of the interior of Amboina.

## PTERIDOPHYTA

The entire Amboina collection of this group, made by Doctor Robinson, has been critically studied by Capt. C. R. W. K. van Alderwerelt van Rosenburgh, of Buitenzorg, Java.\* In preparing the present consideration of the species described by Rumphius I have had the benefit of his published work, both as to the names of the various species under the binomial system, and as to the identity of the forms Rumphius named and described. In a few cases I have made changes in nomenclature, but in no case, except *Cyathea*, involving new combinations.

## CYATHEACEAE

## CYATHEA Smith

## CYATHEA RUMPHIANA (v. A. v. R.) comb. nov.

*Alsophila rumphiana* v. A. v. R. in Philip. Journ. Sci. 11 (1916) Bot. 104.

*Palmifilix alba* Rumph. Herb. Amb. 6: 63.

AMBOINA, Hitoë messen, *Robinson Pl. Rumph. Amb. 463*, October 14, 1913, in light forests, altitude about 175 meters.

Doctor Robinson, who had the opportunity of examining this tree fern in the field and of making a direct comparison with Rumphius's description, considers this identification of *Palmifilix alba* Rumph. as certain.

## CYATHEA AMBOINENSIS (v. A. v. R.) comb. nov.

*Alsophila amboinensis* v. A. v. R. in Philip. Journ. Sci. 11 (1916) Bot. 103.

*Palmifilix nigra* Rumph. Herb. Amb. 6: 63 (t. 27?).

AMBOINA, Hatiwe and Soja, *Robinson Pl. Rumph. Amb. 464, 465*, August and September, 1913, in forests, altitude 300 to 400 meters.

The only previously suggested reduction of *Palmifilix nigra* Rumph. is that of Henschel and Pritzel, who referred it to *Cyathea arborea* Sm., a species of tropical America. The reduction made here is probably the correct disposition of *Palmifilix nigra* Rumph. The illustration, however, may belong to any one of the three forms described in this chapter, the particular one intended not being indicated by Rumphius.

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\* The Amboina Pteridophyta collected by C. B. Robinson. *Philip. Journ. Sci.* 11 (1916) Bot. 101-123, t. 5, 6.

## CYATHEA sp.

*Palmifilix postium* Rumph. Herb. Amb. 6: 63.

Manifestly one of the tree ferns and probably a *Cyathea*. Its exact status cannot be determined from any data at present available.

## POLYPODIACEAE

## DRYOPTERIS Adanson

**DRYOPTERIS FEROX** (Blume) O. Kuntze Rev. Gen. Pl. 2 (1891) 812.

*Aspidium ferox* Blume Enum. Pl. Jav. (1828) 153.

*Filix amboinica mas* Rumph. Herb. Amb. 6: 69.

AMBOINA, Robinson Pl. Rumph. Amb. 439, July 23, 1913, on river banks in the vicinity of the town of Amboina.

This reduction of *Filix amboinica mas* is certainly correct, the species being a strongly marked and characteristic one and Rumphius's description agreeing closely with it.

## TECTARIA Cavanilles

(*Aspidium* Swartz)

**TECTARIA CRENATA** Cav. Descr. (1802) 250.

*Aspidium repandum* Willd. Sp. Pl. 5 (1810) 216.

*Lonchitis amboinica recta* Rumph. Herb. Amb. 6: 70.

AMBOINA, Soja, Robinson Pl. Rumph. Amb. 447, August 2, 1913, altitude about 250 meters.

This is probably the correct disposition of the plant Rumphius briefly described.

## STENOSEMIA Presl

**STENOSEMIA AURITA** (Sw.) Presl Tent. Pterid. (1836) 237.

*Acrostichum auritum* Sw. in Schrad. Journ. 1800<sup>2</sup> (1801) 12.

*Filix florida* Rumph. Herb. Amb. 6: 78, t. 35, f. 1.

AMBOINA, Way uri, Robinson Pl. Rumph. Amb. 444, September 9, 1913, in river bottoms at low altitudes.

This reduction was made by Willdenow, Sp. Pl. 5 (1810) 112, as *Acrostichum auritum* Sw. It has been cited under *Polybotrya aurita* Blume and *Acrostichum floridum* Poir., both of which are synonyms of *Stenosemia aurita* Presl.

## DAVALLIA Smith

**DAVALLIA ELATA** (Forst.) Spreng. in Schrad. Journ. 1799<sup>2</sup> (1799) 271.

*Trichomanes elatum* Forst. Prodr. (1786) 85.

*Dryopteris triplex arborea* Rumph. Herb. Amb. 6: 73, t. 32, f. 1.

AMBOINA, Ayer putri, Robinson Pl. Rumph. Amb. 449, July 28, 1913, on trees at low altitudes.

Very closely allied to *Davallia denticulata* (Burm. f.) Mett., but considered by van Alderwereldt van Rosenburgh to be specifically distinct; see Philip. Journ. Sci. 11 (1916) Bot. 108.

#### TAPEINIDIUM C. Christensen

TAPEINIDIUM AMBOYNENSE (Hook.) C. Chr. Ind. Fil. (1906) 631.

*Davallia amboynensis* Hook. Sp. Fil. 1 (1846) 178, t. 56.

*Dryopteris triplex silvestris* I *terrestris* Rumph. Herb. Amb. 6: 73.

AMBOINA, Lateri, Robinson Pl. Rumph. Amb. 443, September 9, 1913, in forests, altitude about 250 meters.

This is probably the correct disposition of the Rumphian species. Blume thought it was a species of *Aspidium*, and Hasskarl placed it with doubt under *Davallia patens* Sw., to which it certainly cannot be referred.

#### ATHYRIUM Roth

ATHYRIUM ESCULENTUM (Retz.) Copel. in Philip. Journ. Sci. 3 (1908) Bot. 295.

*Hemionitis esculenta* Retz. Obs. 6 (1791) 38.

*Diplazium esculentum* Sw. in Schrad. Journ. 1801<sup>2</sup> (1803) 312.

*Filix esculenta* Rumph. Herb. Amb. 6: 67, t. 29.

This characteristic, widely distributed, and well-known fern is not represented in our Amboina collections. The Rumphian figure is a good representation of the species and is unmistakably *Athyrium esculentum* Copel. Henschel and Pritzel have referred it to *Diplazium malabaricum* Spreng., which is a synonym of *Athyrium esculentum* Copel.

#### ASPLENIUM Linnaeus

ASPLENIUM NIDUS Linn. Sp. Pl. (1753) 1079.

*Phyllitis amboinica* I *arborea* Rumph. Herb. Amb. 6: 82 (haud t. 37, f. 1).

*Phyllitis amboinica* II *terrestris* Rumph. Herb. Amb. 6: 82 (haud t. 37, f. 2).

AMBOINA, Ayer putri, Robinson Pl. Rumph. Amb. 448, July 28, 1913, epiphytic at low altitudes.

The descriptions given by Rumphius both apply to an *Asplenium* of the *nidus* group, but perhaps more than one species is included. The figures are poor, and the one supposed to represent *Phyllitis amboinica* II *terrestris* does not agree at all with the plant described; it may be some species of *Vittaria* or *Polypodium*. The figure supposed to represent *Phyllitis amboinica* I *arborea* is almost equally poor for *Asplenium nidus* Linn., but may have been drawn from a straggling specimen. The form merely mentioned as having fronds much smaller and narrower

than the above, which Hasskarl indicated as *Phyllitis amboinica* III, is indeterminable, but is certainly no *Asplenium*; it may be a *Vittaria*.

#### BLECHNUM Linnaeus

**BLECHNUM ORIENTALE** Linn. Sp. Pl. (1753) 1077.

*Polypodium simplex* Burm. f. Fl. Ind. (1768) 235 (type!).

*Lonchitis amboinica recta* I *major rubra* Rumph. Herb. Amb. 6: 70, t. 30, f. 1.

Under the name *Lonchitis amboinica* Rumphius described several quite unrelated species, apparently pertaining to as many different genera as he described forms. The form figured, t. 30, f. 1, which manifestly is *recta* I *major rubra*, is unquestionably *Blechnum orientale* Linn. It was reduced by Burman f. to *Polypodium simplex* Burm. f., a species apparently typified by the Rumphian illustration, and one that has remained of uncertain status until the present time. Loureiro erroneously referred it to *Pteris vittata* Linn., while Henschel, following Blume, placed it as an undetermined species of *Angiopteris*. The red color of the young pinnae, mentioned by Rumphius, is very characteristic of *Blechnum orientale* Linn.

#### STENOCHLAENA J. Smith

**STENOCHLAENA PALUSTRIS** (Burm. f.) Bedd. Ferns Brit. Ind. Suppl. (1876) 26.

*Polypodium palustre* Burm. f. Fl. Ind. (1768) 234.

*Lonchitis amboinica* III *volubilis* Rumph. Herb. Amb. 6: 71, t. 31.

Not represented in our Amboina collections. The figure, however, unquestionably represents a species of *Stenochlaena*, and from the description quite certainly *S. palustris* (Burm. f.) Bedd. It has been reduced by Willdenow to *Lomaria scandens* Willd., and by Poiret to *Onoclea scandens* Sw., both synonyms of *Stenochlaena palustris* Bedd.

#### CHEILANTHES Swartz

**CHEILANTHES TENUIFOLIA** (Burm. f.) Sw. Syn. (1806) 129, 332.

*Trichomanes tenuifolia* Burm. f. Fl. Ind. (1768) 237.

*Acrostichum tenue* Retz. Obs. 6 (1791) 39.

*Dryopteris campestris* Rumph. Herb. Amb. 6: 74, t. 34, f. 2.

AMBOINA, Way to Tommo, Robinson Pl. Rumph. Amb. 442, August 19, 1913, terrestrial, altitude about 80 meters.

The Rumphian illustration is unmistakably this species. It was first reduced by Burman f., in the original description of *Trichomanes tenuifolia* Burm. f., and has been cited under the synonyms given above as well as under the additional synonym *Adiantum varians* Poir.

## ADIANTUM Linnaeus

## ADIANTUM sp.

*Capillus veneris amboinicus* Rumph. Herb. Amb. 6: 77, t. 34, f. 1.

Not represented in our Amboina collections. The figure rather strongly resembles the Philippine *Adiantum opacum* Copel. Lour-eiro erroneously referred it to *Adiantum capillus veneris* Linn., while Pritzel placed it with equal error under *Adiantum aethiopicum* Thunb. Hasskarl, Neue Schlüssel (1866) 165, suggested that it might be *Adiantum pulchellum* Blume, but if correctly drawn the figure represents a species quite different from the one described by Blume.

## ADIANTUM sp.?

*Dryopteris silvestris* III *petraea* Rumph. Herb. Amb. 6: 74.

Hasskarl, Neue Schlüssel (1866) 165, has suggested that this may be *Adiantum pulchellum* Blume. It is probably not Blume's species, but is certainly an *Adiantum* or a *Lindsaya*.

## POLYPODIUM Linnaeus

POLYPODIUM SINUOSUM Wall. Cat. (1829) no. 2231, *nomen nudum*; Hook. Sp. Fil. 5 (1863) 61, t. 284.

*Scolopendria* II *minor* Rumph. Herb. Amb. 6: 84.

AMBOINA, Kati-kati, Robinson Pl. Rumph. Amb. 445, October 17, 1913, on trees in mangrove swamps.

There is some doubt as to whether or not *Scolopendria* II *minor* Rumph. is *Polypodium sinuosum* Wall. as here interpreted. It seems probable that more than one species of *Polypodium* is included in Rumphius's description.

POLYPODIUM PHYMATODES Linn. Mant. 2 (1771) 306.

*Polypodium excavatum* Roxb. Hort. Beng. (1814) 75 (type!).

*Polypodium indicum* II *minus* Rumph. Herb. Amb. 6: 80, t. 35, f. 2.

AMBOINA, Ayer putri, Robinson Pl. Rumph. Amb. 441, July 28, 1913, epiphytic at low altitudes.

The specimen is very typical *Polypodium phymatodes* Linn. and agrees with Rumphius's description and figure. Burman f., Fl. Ind. (1768) 233, referred it to *Polypodium dissimile* Linn., a species of doubtful status, based on a figure of Plukenet's, drawn from American material. It is the type of *Polypodium excavatum* Roxb., as originally published in the Hortus Bengalensis, by citation of the Herbarium Amboinense; see C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 415. It may not, however, be the species actually described by Roxburgh under the same name in Calcutta Journ. Nat. Hist. 4 (1844) 485.

Hasskarl, Neue Schlüssel (1866) 166, suggested *Polypodium phymatodes* Linn. as the proper place for the Rumphian species, and I consider that this is manifestly the correct disposition of it.

#### DRYNARIA (Bory) J. Smith

**DRYNARIA SPARSISORA** (Desv.) Moore Index Fil. (1862) 348.

*Polypodium sparsisorum* Desv. in Berl. Mag. 5 (1811) 315.

*Polypodium indicum* l. pilosum s. majus Rumph. Herb. Amb. 6: 78, t. 36.

AMBOINA, Ayer putri, Robinson Pl. Rumph. Amb. 450, July 28, 1913, epiphytic at low altitudes.

This was originally reduced by Linnaeus to *Polypodium quercifolium* Linn. (= *Drynaria quercifolia* J. Sm.) in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 1325, Sp. Pl. ed. 2 (1763) 1547, which has been accepted by all authors who have had occasion to cite the Rumphian illustration. There is nothing in the figure by which the Rumphian species can be distinguished as between *Drynaria sparsisora* Moore and *D. quercifolia* J. Sm., the two being very closely allied. The Amboina specimens, however, are *Drynaria sparsisora* Moore, and hence the presumption is that *Polypodium indicum* l. majus Rumph. pertains to this species rather than to *Drynaria quercifolia* J. Sm.

#### PLATYCERIUM Desvauux

**PLATYCERIUM CORONARIUM** (Koenig) Desv. Prodr. (1827) 213.

*Osmunda coronaria* Koenig Naturf. Halle 21 (1785) 107, t. 3.

Simbar majangan Rumph. Herb. Amb. 6: 83.

This species is not represented in our Amboina collections. The plant described is manifestly a *Platycerium*, and in all probability it is *P. coronarium* Desv. Blume reduced it to *Platycerium biforme* Bl., which is a synonym of *P. coronarium* Desv.

#### PARKERIAACEAE

##### CERATOPTERIS Brongniart

**CERATOPTERIS THALICTROIDES** (Linn.) Brongn. in Bull. Soc. Philom. (1821) 186.

*Acrostichum thalictroides* Linn. Sp. Pl. (1753) 1070.

*Acrostichum siliquosum* Linn. l. c.

*Millefolium aquaticum* Rumph. Herb. Amb. 6: 176, t. 74, f. 1.

This common and widely distributed fern is not represented in our Amboina collections. *Millefolium aquaticum* Rumph. was



first reduced by Linnaeus to *Acrostichum siliquosum* Linn., a synonym of *Ceratopteris thalictroides* (Linn.) Brongn., which is manifestly the correct disposition of it. It has also been cited under the following synonyms of *Ceratopteris thalictroides* Brongn.: *Ellobocarpus oleraceus* Kaulf. and *Pteris thalictroides* Willd.

## GLEICHENIACEAE

## GLEICHENIA Smith

**GLEICHENIA LINEARIS** (Burm. f.) Clarke in Trans. Linn. Soc. Bot. 1 (1880) 428.

*Polypodium lineare* Burm. f. Fl. Ind. (1768) 235, t. 67, f. 2.

*Filix calamaria* Rumph. Herb. Amb. 6: 85, t. 38.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 446*, July 18, 1913, on rocks at low altitudes, locally known as *paku kawa*.

This reduction of *Filix calamaria* is certainly correct, for the figure and description are unmistakable. It has been reduced by Poiret to *Polypodium dichotomum* Thunb., by Willdenow to *Mertensia dichotoma* Willd., by Blume to *Gleichenia hermannii* R. Br., and by Mettenius to *Gleichenia dichotoma* Hook. var. *alternans* Mett.

## SCHIZAEACEAE

## SCHIZAEA Smith

**SCHIZAEA DICHOTOMA** (Linn.) Smith in Mém. Acad. Turin 5 (1793) t. 9, f. 9.

*Acrostichum dichotomum* Linn. Sp. Pl. (1753) 1068.

*Equisetum silvestre* III Rumph. Herb. Amb. 6: 92.

AMBOINA, Salahoetoe, *Robinson Pl. Rumph. Amb. 460*, November, 1913.

This reduction was first made by Hasskarl, Neue Schlüssel (1866) 168, following Blume's reduction of it to the genus *Schizaea*, and this is apparently the correct disposition of it.

## LYGODIUM Swartz

**LYGODIUM CIRCINNATUM** (Burm. f.) Sw. Syn. (1806) 153.

*Ophioglossum circinnatum* Burm. f. Fl. Ind. (1768) 228.

*Adiantum volubile* I *polypoides* Rumph. Herb. Amb. 6: 75, t. 33 (including *medium* and *scriptum*).

AMBOINA, Binting and Amahoesoe, *Robinson Pl. Rumph. Amb. 451, 452*, August, 1913, in limestone regions at low altitudes.

Linnaeus originally reduced this, through error, to *Ophioglossum flexuosum* Linn., in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134. Burman f., Fl. Ind. (1768) 228, cites it

as a synonym in the original description of *Ophioglossum circinnatum* Burm. f., the species being based primarily on Javan specimens; it has, since Burman's species was proposed, been cited under this name or synonyms of it. The forms described as *medium* and *scriptum* are manifestly referable to *Lygodium circinnatum* Sw.

**LYGODIUM SCANDENS** (Linn.) Sw. in Schrad. Journ. 1800<sup>2</sup> (1801) 106.

*Ophioglossum scandens* Linn. Sp. Pl. (1753) 1063.

*Adiantum volubile* III minus Rumph. Herb. Amb. 6: 76, t. 32, f. 2, 3.

AMBOINA, Soja road and vicinity of the town of Amboina, *Robinson Pl. Rumph. Amb. 453, 454*, August and October, 1913, in thickets and forests, altitude 30 to 70 meters, locally known as *paku kawa*.

The reduction to *Ophioglossum scandens* Linn. was made originally by Linnaeus in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 1318, but it is to be noted that Linnaeus quotes "*Dryopteris triplex*" as the name corresponding to t. 32, under *Ophioglossum scandens*. The form figured is an excellent representation of *Lygodium scandens* (Linn.) Sw. Blume has referred it to *Lygodium microphyllum* R. Br., a synonym of *L. scandens* Sw.

## OPHIOGLOSSACEAE

### OPHIOGLOSSUM Linnaeus

**OPHIOGLOSSUM PENDULUM** Linn. in Stickman Herb. Amb. (1754) 27, Amoen. Acad. 4 (1759) 135, Sp. Pl. ed. 2 (1763) 1518 (type!).

*Scolopendria* I major Rumph. Herb. Amb. 6: 84, t. 37, f. 3.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb. 440*, August 2, 1913, in forests at an altitude of 400 meters.

*Scolopendria major* Rumph. is the whole basis of *Ophioglossum pendulum* Linn., this reduction having been accepted by all authors, although by some placed in another genus, as *Ophioderma pendula* (Linn.) Presl.

**OPHIOGLOSSUM PEDUNCULOSUM** Desv. in Berl. Mag. 5 (1811) 306.

*Ophioglossum simplex* Rumph. Herb. Amb. 6: 152, t. 88, f. 2.

Not represented in our Amboina collections. *Ophioglossum simplex* Rumph. was originally reduced by Linnaeus to *Ophioglossum vulgatum* Linn. in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 135, which is manifestly a wrong disposition of it. Roxburgh, Calcutta Journ. Nat. Hist. 4 (1844) 475, placed it under *Ophioglossum cordifolium* Roxb., and

Schlechtendal, Adumbr. (1825) 9, placed it under *Ophioglossum moluccanum* Schlecht., both synonyms of *Ophioglossum pedunculatum* Desv.

#### HELMINTHOSTACHYS Kaulfuss

**HELMINTHOSTACHYS ZEYLANICA** (Linn.) Hook. Gen. Fil. (1840) t. 47.

*Osmunda zeylanica* Linn. Sp. Pl. (1753) 1063.

*Ophioglossum laciniatum* Rumph. Herb. Amb. 6: 153, t. 68, f. 3.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb. 455*, October 28, 1913, in ravines at an altitude of about 70 meters.

The original reduction of *Ophioglossum laciniatum* was made by Linnaeus (to *Osmunda zeylanica* Linn.) in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 135, Syst. ed. 10 (1759) 1318, Sp. Pl. ed. 2 (1763) 1519, which as *Helminthostachys zeylanica* Hook. is manifestly the correct disposition of it. By other authors it has been cited under *Botrychium zeylanicum* Willd., and *Helminthostachys dulcis* Kaulf.—both synonyms of *H. zeylanica* Hook.

#### MARATTIACEAE

##### ANGIOPTERIS Hoffmann

**ANGIOPTERIS AMBOINENSIS** DeVr. in Nederl. Kruidk. Arch. 3 (1852) 195, Monogr. Marat. (1853) 32.

*Filix aquatica* l femina Rumph. Herb. Amb. 6: 65, t. 28.

Not represented in our Amboina collections. Blume thought that this might be a species of *Marattia*, but the size of the plant, as indicated by Rumphius, makes this suggested reduction an impossible one. While it is impossible definitely to state that *Filix aquatica* Rumph. is identical with *Angiopteris amboinensis* DeVr., the presumption is very great that they are the same.

#### LYCOPODIACEAE

##### LYCOPODIUM Linnaeus

**LYCOPODIUM CERNUUM** Linn. Sp. Pl. (1753) 1103.

*Cingulum terrae* Rumph. Herb. Amb. 6: 87, t. 40, f. 1.

AMBOINA, Batoe merah and Soja road, *Robinson Pl. Rumph. Amb. 457*, July and August, 1913, in rocky places and on grassy hillsides, altitude 15 to 200 meters, locally known as *daun rai rai*.

Linnaeus originally reduced *Cingulum terrae* to *Lycopodium canaliculatum* Linn. in Stickman Herb. Amb. (1754) 27, Amoen. Acad. 4 (1759) 135, but later, Syst. ed. 10 (1759) 1330, placed it under *Lycopodium cernuum* Linn., where it manifestly belongs.

**LYCOPODIUM PHLEGMARIA** Linn. Sp. Pl. (1753) 1101.

*Equisetum amboinicum* s. *arborescens squamatum* Rumph. Herb. Amb. 6: 91, t. 41, f. 1.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 456, August 13, 1913, on trees.

This reduction was first made by Linnaeus in *Stickman Herb. Amb.* (1754) 27, *Amoen. Acad.* 4 (1759) 135, *Syst. ed.* 10 (1759) 1330, and is certainly the correct disposition of it.

**LYCOPODIUM NUMMULARIFOLIUM** Blume Enum. (1828) 263.

*Equisetum amboinicum* II minor Rumph. Herb. Amb. 6: 92?

Not represented in our Amboina collections. The reduction is that suggested by van Alderwerelt van Rosenburgh in *Philip. Journ. Sci.* 11 (1916) Bot. 120. Hasskarl, *Neue Schlüssel* (1866) 167, thought that it might be *Lycopodium phlegmarioides* Spring.

## SELAGINELLACEAE

### SELAGINELLA \* Spring

**SELAGINELLA PLANA** (Desv.) Hieron. in Engl. & Prantl Nat. Pflanzenfam. 1<sup>4</sup> (1900) 703.

*Lycopodium planum* Desv. in Lam. Encycl. Suppl. 3 (1813) 554.

*Muscus fruticescens femina* Rumph. Herb. Amb. 6: 86, t. 39, f. 1.

AMBOINA, Gelala, *Robinson Pl. Rumph. Amb.* 458, July 16, 1913, on banks at low altitudes.

Undoubtedly this is the correct disposition of *Muscus fruticescens femina* Rumph., and is that suggested by Desvaux in Lam. Encycl. Suppl. 3 (1813) 538. The only other suggested reduction is that of Hasskarl, *Neue Schlüssel* (1866) 167, who thought it might be *Lycopodium dichotomum* Sw.

**SELAGINELLA D'URVILLEI** A. Br. in Verh. Zool. Bot. Ges. (1869) 585.

*Muscus fruticescens mas* Rumph. Herb. Amb. 6: 86, t. 39, f. 2.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb.* 459, September 4, 1913, in light woods at low altitudes.

This is in all probability the correct disposition of *Muscus fruticescens mas* Rumph.; although, if a number of allied species should be found in Amboina, it would be difficult or impossible to determine to which of the forms the Rumphian figure applies. Desvaux, in Lam. Encycl. Suppl. 3 (1813) 558, thought that it might be *Lycopodium caudatum* Desv., and Hasskarl, *Neue Schlüssel* (1866) 167, thought that it might be *Lycopodium fruticulosum* Blume, both of these being species of *Selaginella*.

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\* Retained name, Brussels Congress; *Selaginoides* Boehm. (1760), *Lycopodioides* Boehm. (1760), and *Stachygynandrium* Beauv. (1804) are older.

## PSILOTACEAE

## PSILOTUM Swartz

**PSILOTUM TRIQUETRUM** Sw. Syn. (1806) 117.

*Equisetum secundum* Rumph. Herb. Amb. 6: 92.

AMBOINA, Amahoesoe, Bato Gadjah, and vicinity of the town of Amboina, *Robinson Pl. Rumph. Amb.* 461, 462, August and September, 1913, on trees, sea level to an altitude of 150 meters.

Hasskarl, *Neue Schlüssel* (1866) 167, placed this under *Psilotum complanatum* Sw., but as the Amboina specimens are all referable to *P. triquetrum* Sw., it is assumed that this is the correct disposition of *Equisetum secundum* Rumph.

## PTERIDOPHYTA OF UNCERTAIN STATUS

*Filix aquatica* II mas Rumph. Herb. Amb. 6: 66.

Very briefly described in the same chapter with *Angiopteris amboinensis* DeVr. Hasskarl, *Neue Schlüssel* (1866) 164, has referred it to *Pteris longipes* Don, but without good reason. Its status cannot be determined from the data given by Rumphius.

*Filix urens* Rumph. Herb. Amb. 6: 69.

This is indeterminable from any data given by Rumphius; perhaps a *Dryopteris*.

*Lonchitis amboinica recta* I major alba Rumph. Herb. Amb. 6: 70.

Van Alderwerelt van Rosenburgh has suggested that this may be *Polypodium albens* Blume.

*Lonchitis amboinica recta* II minor Rumph. Herb. Amb. 6: 70.

Under this two forms are described, *nigra* and *alba*, both indeterminable from any data at present available. Willdenow, *Sp. Pl.* 5 (1810) 228, referred the figure, *t.* 30, *f.* 2, to *Aspidium amboinense* Willd., which is supposed to be the same as *Dryopteris parasitica* O. Kuntze. The figure certainly does not represent the latter species, and there is, moreover, no way of determining which form Rumphius intended it to represent as between the forms *major* and *minor*.

*Lonchitis saguaria* Rumph. Herb. Amb. 6: 72. Indeterminable.

*Lonchitis amara* Rumph. Herb. Amb. 6: 72. Indeterminable.

*Lonchitis pilosa* Rumph. Herb. Amb. 6: 72. Indeterminable.

*Lonchitis muscosa* Rumph. Herb. Amb. 6: 72. Indeterminable.

The above four forms are briefly described. A more comprehensive exploration of Amboina may yield data and material by which they can be eventually determined.

*Dryopteris silvestris* II arborea Rumph. Herb. Amb. 6: 74.

Indeterminable. An epiphytic fern, perhaps belonging in the *Davalliae* as suggested by Hasskarl.

*Filix lanuginosa* Rumph. Herb. Amb. 6: 69.

From the description the plant must be *Cibotium baranetz* J. Sm. or *Dicksonia sorbifolia* Sm., as suggested by van Alderwerelt van Rosenburgh. A future exploration of Amboina will doubtless yield material by which its status can be definitely determined.

*Filix canarina* Rumph. Herb. Amb. 6: 64.

Indeterminable from the data and the material at present available.

## SPERMATOPHYTA

### GYMNOSPERMAE

#### CYCADACEAE

##### CYCAS Linnaeus

**CYCAS RUMPHII** Miq. in Bull. Soc. Phys. Nat. Néerl. (1839) 45.

*Olus calappoides* Rumph. Herb. Amb. 1: 86, *t.* 22, 23.

*Olus calappoides* II e Celebes Rumph. l. c. 87, *t.* 20, 21.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb. 563*, November 29, 1913, in light forests near sea level, staminate, locally known as *sayor kalappa*.

The specimen represents *Olus calappoides mas* Rumph. Herb. Amb. 1: 99, *t.* 23. Possibly more than one species is represented by the plants described and figured by Rumphius, but more abundant material and a critical study of all the Indo-Malayan forms allied to *Cycas circinalis* Linn. will be necessary definitely to settle this point. The Rumphian illustrations are as follows: *t.* 20 represents an oblong-ovoid staminate inflorescence with leaves, poor; *t.* 21, a habit sketch of the same; *t.* 22, a habit sketch and female inflorescence and infructescence, fairly good; and *t.* 23, a habit sketch with an elongated staminate inflorescence.

It is by no means certain that *Cycas rumphii* Miq. is specifically distinct from *C. circinalis* Linn. The latter should be interpreted by Ceylon and Indian specimens, although in the original description Linnaeus gives two references to Amboina figures and descriptions, including *Olus calappoides* Rumph. Herb. Amb. 1: 86, *t.* 22, 23. In Stickman, Herb. Amb. (1754) 6, and in Amoen. Acad. 4 (1759) 119, *t.* 21 to 23 are included. Loureiro, Fl. Cochinch. (1790) 632, cites all four figures under *Cycas inermis* Lour., a species that must be interpreted from specimens from southern China and Cochin-China; it is supposed to be the same as *Cycas revoluta* Thunb., but Loureiro's description of the leaves does not conform with Thunberg's species. Blume, Rumphia 4 (1848) 14, refers *Lagolo* Rumph. Herb. Amb. 1: 87, *t.* 22, *B.* to *Cycas thouarsii* R. Br., a species of eastern Africa and Madagas-

car and manifestly very closely allied to *Cycas rumphii* Miq. Hamilton, Mem. Wern. Soc. 5 (1826) 322, refers *Olus calappoides* Rumph., t. 20, 21, to *Cycas pectinata* Ham., a species described from Indian specimens, and one not included in Index Kewensis. Miquel, Comment. Phyt. (1840) 126, refers *Olus calappoides* II e Celebes to *Cycas celebica* Miq., a species apparently to be interpreted from Rumphius's description. Doctor Stapf \* has contrasted *Cycas thouarsii* R. Br., *C. rumphii* Miq., and *C. circinalis* Linn., giving in synoptical form the macroscopic and microscopic characters by which the three may be distinguished. Pending a critical revision of the entire genus, it is probably best to retain the Moluccan form, that is manifestly closely allied to *Cycas circinalis* Linn., under the name *Cycas rumphii* Miq.

**CYCAS REVOLUTA** Thunb. Fl. Jap. (1784) 229.

*Arbor calappoides sinensis* Rumph. Herb. Amb. 1: 92, t. 24.

This commonly cultivated species is not represented in our Amboina collections. The Rumphian species is manifestly *Cycas revoluta* Thunb. The drawing represents a leaf only, but is well executed and characteristic of the species.

## TAXACEAE

### PODOCARPUS † Persoon

**PODOCARPUS RUMPHII** Blume Rumphia 3 (1847) 214.

*Lignum emanum* Rumph. Herb. Amb. 3: 47, t. 26.

AMBOINA, Hoetoemoeri road and Hitoe messen, *Robinson Pl. Rumph. Amb.* 309, September 30 and October 18, 1913, altitude 250 and 700 meters, locally known as *dammara puti* (properly the name for *Agathis alba* Foxw., p. 76).

This specimen is *Lignum emanum* Rumph., but it may not be the same as the form on which Blume actually based his description of *Podocarpus rumphii*. It should be critically compared with the species commonly known as *Podocarpus neriifolius* Don. According to Blume it is *Cerbera nereifolia* Zipp. in Bijdr. Nat. Wetensch. 5 (1830) 175, but *Podocarpus neriifolius* Don is earlier. *Lignum emanum* Rumph. is cited by Blume as a synonym of *Podocarpus rumphii*.

Hasskarl, Neue Schlüssel (1866) 38, refers *Dammara alba* mas Rumph. Herb. Amb. 2: 175, t. 57, f. A-C, to *Podocarpus latifolia*

\* *Cycas Thouarsii*. *Kew Bull.* (1916) 1-8.

† Retained name, Vienna Code; *Nageia* Labill. (1806) is older.

Blume=*Podocarpus blumei* Endl. Of the figures cited, "A" is a staminate cone of *Agathis alba* Foxw.; "B" is, according to Rumphius, a leaf of the true dammar, *Agathis alba* Foxw.; while "C" is said by Rumphius to be a branchlet from a young tree of the female dammar. I can see no reason for considering that *Podocarpus blumei* Endl. is included in the description of *Dammara alba* Rumph. The leaves of young plants of *Agathis alba* Foxw. very greatly resemble those of *Podocarpus blumei* Endl., and it is, of course, possible that the two were confused by Rumphius.

## PINACEAE

### AGATHIS \* Salisbury

**AGATHIS ALBA** (Lam.) Foxw. in Philip. Journ. Sci. 5A (1910) 173, 6 (1912) Bot. 167.

*Dammara alba* Lam. Encycl. 2 (1786) 259 (type!).

*Pinus abies* Lour. Fl. Cochinch. (1790) 579.

*Agathis loranthifolia* Salisb. in Trans. Linn. Soc. 8 (1807) 311.

*Abies dammara* Poir. in Lam. Encycl. Suppl. 5 (1817) 35.

*Agathis dammara* Rich. Comm. Conif. Cyc. (1826) 93, t. 19.

*Pinus dammara* Lamb. Pin. 1 (1803) 61, t. 38.

*Dammara rumphii* Presl Epim. Bot. (1851) 236.

*Dammara alba* Rumph. Herb. Amb. 2: 174, t. 57.

AMBOINA, Soija diatas, Robinson Pl. Rumph. Amb. 220, locally known as *dammar puti*.

*Dammara alba* Rumph. is the whole basis of *Dammara alba* Lam. Lamarck published the species with Rumphius as authority. It must be interpreted from the Rumphian figure and description and from Amboina specimens, while most of the synonyms cited above must be interpreted wholly or partly from the same data. Warburg, Monsunia 1 (1900) 182, in his attempt to split up the collective species *Agathis dammara* (Lamb.) Rich. states: "Diese Art kann nur nach der Beschreibung von Rumph rekonstruiert werden, da sicheres aus Amboina stammendes Material leider nicht vorliegt und die vielfachen in der Litteratur gegebenen Beschreibungen der Sammeltart nach dem verschiedensten Material angefertigt sind." Warburg recognized ten species of *Agathis* from the Malayan region, but the status of these as valid ones is open to grave doubt.

*Dammara alba* mas Rumph. Herb. Amb. 2: 175, t. 57, f. A-C, referred by Hasskarl, Neue Schüssel (1866) 38, to *Podocarpus latifolia* Blume, I consider to be *Agathis alba* (Lam.) Foxw.

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\* Retained name, Vienna Code; *Dammara* Lam. (1786) is older.



*Dammara alba femina* Rumph. l. c. 175, t. 57, f. D is surely *Agathis alba* (Lam.) Foxw.

*Dammara celebica* Rumph. Herb. Amb. 2: 179=*Dammara alba* var. *celebica* Hassk., Neue Schlüssel (1866) 38, is suggested by Warburg to be the same as *Agathis celebica* (Koord.) Warb. Monsunia 1 (1900) 185, but Doctor Foxworthy, who has examined Celebes specimens collected by Koorders, considers the species to be a synonym of *Agathis alba* Foxw. and reduces likewise *Agathis borneensis* Warb., *A. beccarii* Warb., and *A. macrostachys* Warb.

## GNETACEAE

## GNETUM Linnaeus

GNETUM GNEMON Linn. Mant. 1 (1767) 125.

*Gnetum ovalifolium* Poir. in Lam. Encycl. Suppl. 2 (1811) 810.

*Gnemon domestica mas* Rumph. Herb. Amb. 1: 181, t. 72.

*Gnemon domestica femina* Rumph. Herb. Amb. 1: 181, t. 71.

*Gnemon silvestris* Rumph. Herb. Amb. 1: 183, t. 73.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb. 213*, August 31, 1913, in forests at 300 meters altitude (*Gnemon silvestris* Rumph.); *Robinson Pl. Rumph. Amb. 209*, October 24, 1913, in light woods, altitude about 250 meters, both locally known as *gnemo*.

I consider that the three forms described and figured by Rumphius represent but a single species, this being practically the opinion of other authors who have considered the status of the Rumphian species. *Gnemon domestica femina* Rumph. was reduced by Linnaeus to *Gnetum gnemon* Linn. in the original description of the species, the only deviation from this reduction presented in botanical literature being Blume's reference of it to *Gnetum gnemon* Linn. var. *laurinum* Blume Rumphia 4 (1848) 3, together with *Gnemon domestica mas* Rumph. *Gnetum ovalifolium* Poir. was based on specimens collected in Amboina by Labillardière, with an added reference to *Gnemon silvestris* Rumph. Blume has reduced it to *Gnetum gnemon* Linn. as var. *ovalifolium* (Poir.) Blume, but I consider it scarcely distinguishable from typical *Gnetum gnemon* Linn. even as a variety. *Gnemon domestica mas* Rumph. was reduced by Blume to *Gnetum gnemon* Linn., var. *lucidum* Blume, Rumphia 4 (1848) 4.

GNETUM INDICUM (Lour.) comb. nov.

*Abutua indica* Lour. Fl. Cochinch. (1790) 630.

*Gnetum funiculare* Brongn. in Duperry Voy. Bot. (1829) 12.

*Gnetum funiculare* Blume Nov. Fam. (1834) 32, Hov. & DeVriese Tijdschr. 1 (1834) 162, Ann. Sci. Nat. II 2 (1834) 106.

*Gnetum latifolium* Blume op. cit. 30, 162, 105.

*Gnemon funicularis* Rumph. Herb. Amb. 5: 12, t. 8.

Not represented in our Amboina collections. Loureiro quotes *Gnemon funicularis* Rumph. as a synonym of *Abutua indica* Lour. in the original description of that species. Louriero's type, in the herbarium of the British Museum, is a leaf specimen, and according to Doctor Rendle, who has examined it for me, is apparently the same as *Gnetum funiculare* Blume. Roxburgh, Hort. Beng. (1814) 66, based his *Gnetum scandens* on "H. M. 7. t. 22; H. A. 5. t. 7, 8," i. e. the first reference to Rheede Hortus Malabaricus, and the second to Rumphius Herbarium Amboinense; I believe that the species should be typified by the first reference. However, "Ula. Rheed. mal. 7. p. 41. t. 22" is the whole basis of *Thoa edulis* Willd. Sp. Pl. 4 (1805) 477, so that *Gnetum scandens* Roxb. becomes a synonym of *Gnetum edule* (Willd.) Blume, together with *Gnetum ula* Brongn. The plant that Blume actually described as *Gnetum edule* seems not to be the same as the Indian *Thoa edulis* Willd., but the name must go with the Indian plant. It is by no means clear that this continental form, which appears in modern literature as *Gnetum scandens* Roxb., is specifically distinct from the Malayan *Gnetum indicum* (Lour.) Merr., but at any rate, Loureiro's specific name is much older than any of the others.

**GNETUM GNEMONOIDES** Brongn. in Duperry Voy. Bot. (1829) 12 (type!).

*Gnetum rumphianum* Becc. Malesia 1 (1877) 182.

*Gnetum verrucosum* Karst. in Ann. Jard. Bot. Buitenz. 11 (1893) 216.

**Funis gnemoniformis** Rumph. Herb. Amb. 5: 12, t. 8.

Not represented in our Amboina collections. *Gnetum gnemonoides* Brongn. was based wholly on the Rumphian figure and description of *Funis gnemoniformis*. Blume, Fam. Nov. (1834) 31, Ann. Sci. Nat. II 2 (1834) 106, reduced *Funis gnemoniformis* Rumph. to *Gnetum edule* Blume, a species based on *Thoa edulis* Willd. and differing remarkably from Rumphius's species, as described, in its fruit characters. *Gnetum rumphianum* Becc. was based on specimens from New Guinea, with the addition of a reference to *Funis gnemoniformis* Rumph. It has seeds 5 to 5.5 cm long, in entire agreement with Rumphius's description of the fruits of *Funis gnemoniformis* as "tres digitos transversales longi." *Gnetum verrucosum* Karst. was described from specimens originating in Buru, with fruits 4.5 cm in length, and I have no hesitation in reducing it to *Gnetum gnemonoides* Brongn.

## ANGIOSPERMAE

(MONOCOTYLEDONS)

## PANDANACEAE\*

## PANDANUS Linnaeus

**PANDANUS POLYCEPHALUS** Lam. Encycl. 1 (1785) 372 (type!).**Pandanus humilis** Rumph. Herb. Amb. 4: 143, t. 76.

AMBOINA, Binting and Lateri, *Robinson Pl. Rumph. Amb.* 54, July and August, 1913, in shaded places along streams at low altitudes, and in forests at an altitude of about 250 meters, locally known as *keker* and *pandan keker ayer*.

*Pandanus humilis* Rumph. is the whole basis of *Pandanus polycephalus* Lam., Lamarck's species being based wholly on Rumphius's figure and description. Loureiro, Fl. Cochinch. (1790) 603, described *Pandanus humilis* Lour. from Cochinchina material and reduced to it *Pandanus humilis* Rumph. There is every reason to suppose that the Cochinchina plant described by Loureiro represents a species entirely different from that described by Rumphius, and that Warburg was in error in reducing *Pandanus humilis* Lour. to *Pandanus polycephalus* Lam. The type of Loureiro's species is manifestly the Cochinchina plant described, not the Rumphian synonym cited.

**PANDANUS ROBINSONII** sp. nov. § *Keura*.**Pandanus spurius** Rumph. Herb. Amb. 4: 142, t. 75.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 30 (type), October 29, 1913, along the seashore, locally known as *keker laut*.

Arbor circiter 3.5 m alta, ramosa. Foliis circiter 1 m longis, 4.5 cm latis, aculeatis, apice longissime tenuiterque caudatis. Capitulis ellipticis, 10 cm longis vel maturis majoribus, solitariis, subpendulis; drupis numerosis, obconicis, circiter 2.5 cm longis vel paullo longioribus, apice 1.5 ad 2.5 cm latis, deorsum angustatis, apice latis, subtruncatis, 5- ad 10-locularis, loculis apice sulcis circiter 4 mm longis separatis, lobis oblique pyramidatis, acutis, brunneis, nitidis, 5 ad 8 mm diametro.

*Pandanus spurius* Rumph. has been referred to many different

\* I am under obligations to Dr. U. Martelli, Florence, Italy, for determinations of the *Pandanaceae*. For the proposed changes in nomenclature, however, and for the discussions of the Rumphian species, I am wholly responsible.

species under the binomial system, but none of the names are valid, for which reason I propose to call this plant *Pandanus robinsonii*. Doctor Martelli, who has made the determination of the specimen as *Pandanus spurius*, would call it *Pandanus spurius* Mart., non Miq., but I consider the specific name *spurius* to be invalid. Loureiro, Fl. Cochinch. (1790) 603, erroneously referred it to *Pandanus odoratissimus* Linn. f. Lamarck, Encycl. 1 (1785) 372, placed it under *Pandanus odoratissimus* as var.  $\beta$ . Henschel, Vita Rumph. (1833) 166, referred the name *Pandanus spurius*, but not the figure, to *Pandanus fascicularis* Lam., erroneously citing plates 80 and 81 as *P. spurius*. Persoon, Syn. 2 (1807) 597, placed it, with doubt, under *Pandanus candelabrum* Beauv., an African species. Hasskarl, Flora 25 (1842) Beibl. 2: 14, referred it to *Marquatia globosa* Hassk., a new genus and species based on specimens cultivated in the botanic garden at Buitenzorg, Java, originating in Mauritius; this Walpers, Ann. 1 (1849) 753, renamed *Hasskarlia globosa* Walp. Both names are synonyms of *Pandanus utilis* Bory. Miquel, Anal. Bot. Ind. (1851) 57, Fl. Ind. Bat. 3 (1855) 157, recognizing the fact that *Pandanus spurius* Rumph. was not the same as *Marquatia globosa* Hassk. (*Hasskarlia globosa* Walp.), adopted the specific name *Pandanus spurius* for the species, after Rumphius, but his description applies to the species Hasskarl described, and thus it becomes a synonym of *Pandanus utilis* Bory.

**PANDANUS REPENS** Miq. Fl. Ind. Bat. 3 (1855) 165 (type!).

*Pandanus repens* Rumph. Herb. Amb. 4: 152.

Not represented in our Amboina collections. From the description the plant is probably a variety of *Pandanus tectorius* Soland., corresponding to the Philippine form, *Pandanus sabotan* Blanco, used for similar purposes, that is, for making mats. A species of very doubtful status, known only from Rumphius's description.

**PANDANUS HASSKARLII** nom. nov.

*Pandanus latifolius* Hassk. in Flora 25 (1842) Beibl. 2: 13, non Perr., nec aliorum.

*Pandanus latifolius* Rumph. Herb. Amb. 4: 146, t. 78.

Not represented in our Amboina collections. There is no doubt whatever that Hasskarl correctly interpreted *Pandanus latifolius* Rumph. I have, however, proposed a new name for the species, as the name *latifolius* is preoccupied in the genus.

**PANDANUS TECTORIUS** Soland. in Parkins. Voy. H. M. S. Endeavour (1773) 46.

*Pandanus odoratissimus* Linn. f. Suppl. (1781) 424.

**Pandanus verus** Rumph. Herb. Amb. 4: 139, t. 74.

**Folium baggea** Rumph. quoad t. 31.

This common coastal species is not represented in our Amboina collections, yet the reduction, originally made by the younger Linnaeus, is undoubtedly correct; it is to be noted, however, that he reduced to this species "*t. 74 ad 81*," of which the first and the last are apparently *Pandanus tectorius* Soland. (*P. odoratissimus* Linn. f.), but the others represent entirely different species. *Table 74* is exceedingly poor, but the description of *Pandanus verus* Rumph. applies unmistakably to *Pandanus tectorius* Soland.

**PANDANUS TECTORIUS** Soland. var. **MOSCHATUS** (Miq.).

*Pandanus tectorius* Soland. var. *laevis* (Kunth) Warb. in Engl. Pflanzenreich 3 (1900) 48.

*Pandanus laevis* Kunth Enum. 3 (1841) 100 (type!), non Lour.

*Pandanus moschatus* Miq. Fl. Ind. Bat. 3 (1855) 165 (type!).

**Pandanus moschatus** Rumph. Herb. Amb. 4: 147.

I have followed Warburg in the reduction of this Rumphian species, but differ from him in the selection of the varietal name, as I consider *Pandanus laevis* Kunth to be invalidated by *P. laevis* Lour. Loureiro reduced *Pandanus moschatus* Rumph. to *Pandanus laevis* Lour., Fl. Cochinch. (1790) 604, but Loureiro's species is manifestly not the same as the one Rumphius described and is to be interpreted by Cochinchina material. All early authors, however, followed Loureiro in this reduction.

**PANDANUS CONOIDEUS** Lam. Encycl. 1 (1785) 372 (type!).

*Pandanus ceramicus* Kunth Enum. 3 (1841) 98 (type!).

**Pandanus ceramicus** Rumph. Herb. Amb. 4: 149, t. 79.

This species was reported by Rumphius from Ceram, Buru, Gilolo, and Ternate, but not from Amboina except as an introduced and rarely cultivated plant. It is not represented in our Amboina collections. The Rumphian figure and description are the whole basis of both *Pandanus conoideus* Lam. and *P. ceramicus* Kunth; and Warburg, in Engl. Pflanzenreich. 3 (1900) 69, has apparently interpreted the species correctly.

**PANDANUS DUBIUS** Spreng. Syst. 3 (1826) 897 (type!).

**Folium baggea maritimum** Rumph. Herb. Amb. 4: 151, t. 80 (non t. 81!).

AMBOINA, Latoehalat, *Robinson Pl. Rumph. Amb. 55*, September 22, 1913, along the seashore, locally known as *haun*.

This very characteristic species, as I interpret the original description by Sprengel, is typified by the Rumphian description and illustration, the reference to the Mascarene Islands being added because of the doubtful reduction of *Pandanus erigens* Thouars (= *Pandanus montanus* Bory). The figure of the single drupe given by Rumphius leaves absolutely no doubt as to the identity of *Pandanus baggea maritimum*.

**PANDANUS BAGEA** Miq. Fl. Ind. Bat. 3 (1855) 159 (type!).

*Folium baggea verum* Rumph. Herb. Amb. 4: 150.

This form was reduced by Warburg, in Engl. Pflanzenreich 3 (1900) 50, as a synonym of *Pandanus dubius* Spreng., which is apparently wrong. According to the description and habitat given by Rumphius, it cannot possibly be Sprengel's species. It is suspected that it may be a form of *Pandanus tectorius* Soland., and it may be the form of *Pandanus baggea* Rumph. figured on t. 81, which I have referred to *Pandanus tectorius* Soland.

**PANDANUS AMBOINENSIS** Warb. in Engl. Pflanzenreich 3 (1900) 83.

*Pandanus rumphii* Warb. in Engl. Pflanzenreich 3 (1900) 84 (type!).

*Pandanus montanus* Miq. Fl. Ind. Bat. 3 (1855) 161 (type!), non Bory.

*Pandanus ceramicus* Kunth var. *sylvestris* Kunth Enum. 3 (1841) 98 (type!).

*Pandanus silvestris* (terrestris II) Rumph. Herb. Amb. 4: 145, t. 77.

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb. 31*, September 9, 1913, in forests, altitude about 350 meters, locally known as *keker saun*.

Under *Pandanus silvestris* Rumphius described two entirely different species, but his illustration manifestly belongs with *Pandanus silvestris terrestris II*, which is the type of *Pandanus montanus* Miq., *P. rumphii* Warb., and the variety *sylvestris* of *Pandanus ceramicus* Kunth. The mature cones are about 40 cm long and 8 to 9 cm in diameter. The species is known only from Amboina.

**PANDANUS TERRESTRIS** Warb. in Engl. Pflanzenreich 3 (1900) 84 (type!), excl. syn. Miquel.

*Pandanus sylvestris* Miq. Fl. Ind. Bat. 3 (1855) 161 (type!), non Bory.

*Pandanus montanus* (silvestris I) Rumph. Herb. Amb. 4: 145 (non t. 77!).

*Anassa silvestris* Rumph. Herb. Amb. 5: 230?

Not represented in our Amboina collections, and a species of very doubtful status. Warburg, in Engl. Pflanzenreich 3 (1900) 84, has erroneously cited the Miquelian synonym, *Pandanus montanus*, under *Pandanus terrestris* Warb., but it properly belongs with *Pandanus amboinensis* Warb. (*P. rumphii* Warb.); the

Rumphian figure cannot belong to *Pandanus terrestris* Warb. according to Rumphius's description, but certainly belongs with *Pandanus amboinensis* Warb. Hasskarl, Neue Schlüssel (1866) 87, has interchanged most of the synonyms cited by him between *terrestris I* and *terrestris II*, citing the plate, with doubt, under both. The brief description given by Rumphius is the whole basis of *Pandanus sylvestris* Miq., non Bory, and *P. terrestris* Warb. The form mentioned by Rumphius as *Anassa sylvestris* is unquestionably a *Pandanus* and is probably referable here. No data are given, however, by which its exact status can be determined.

#### FREYCINETIA Gaudichaud

##### FREYCINETIA FUNICULARIS (Savigny) comb. nov.

*Pandanus funicularis* Savigny in Lam. Encycl. 4 (1798) 735 (type!).

*Freycinetia strobilacea* Blume Rumphia 1 (1835) 156.

*Pandanus funicularis* Rumph. Herb. Amb. 4: 153 t. 82.

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb.* 29, August 16, 1913, in forests, altitude about 30 meters, locally known as *anapur*.

Savigny compiled a description of the species, under the Rumphian binomial, in Lamarck's Encyclopédie 4 (1798) 735, and this manifestly constitutes a valid post-Linnean publication of the binomial. I have accordingly accepted this specific name in place of Blume's. Blume reduced *Pandanus funicularis* Rumph. to *Freycinetia strobilacea* Blume in the original description of that species, the type being from Amboina. The species is known only from Amboina.

##### FREYCINETIA GRAMINEA Blume Rumphia 1 (1835) 159 (type!).

*Carex arborea* Rumph. Herb. Amb. 6: 21, t. 8, f. 2.

Not represented in our Amboina collections unless the sterile *Rel. Robins.* 1604 is referable here. *Carex arborea* Rumph. is the whole basis of *Freycinetia graminea* Blume and is apparently known only from the Rumphian description. Linnaeus, Syst. ed. 10 (1759) 865, erroneously referred t. 8, f. 2, to *Schoenus secans* Linn.=*Scleria*; but the Rumphian reference is not the type of the species, and the figure intended by Linnaeus was manifestly t. 8, f. 1, which is a *Scleria*.

##### FREYCINETIA sp.

*Appendix cuscuaria* I *angustifolia* Rumph. Herb. Amb. 5: 488.

The form described is manifestly some species of *Freycinetia*. This reduction was suggested by Hasskarl, with doubt, Neue Schlüssel (1866) 150. Its further identification is impossible from the meager data given by Rumphius.

## HYDROCHARITACEAE

## ENHALUS Richard

**ENHALUS ACOROIDES** (Linn. f.) Rich. ex Steud. Nomencl. ed. 2, 1 (1840) 554; Chatin Anat. Pl. Aquat. (1862) 15, t. 6.

*Stratiotes acoroides* Linn. f. Suppl. (1781) 268.

*Enhalus koenigii* Rich. in Mém. Inst. Paris 2 (1811) 78.

*Acorus marinus* Rumph. Herb. Amb. 6: 191, t. 75, f. 2.

AMBOINA, Gelala, Robinson Pl. Rumph. Amb. 474, on tidal flats, October 20, 1913.

*Acorus marinus* Rumph. is the first reference given by the younger Linnaeus in the original publication of *Stratiotes acoroides* Linn. f.; the actual type, however, was a specimen from Ceylon, collected by Koenig. This reduction was followed by Willdenow, Poiret, Persoon, and other authors. Miquel, Fl. Ind. Bat. 3 (1857) 237, cites it under *Enhalus koenigii* Rich., a synonym of *E. acoroides* (Linn. f.) Rich.

## GRAMINEAE

The comparatively few species of this family considered by Rumphius are chiefly those of economic value, such as the coarser forms, the bamboos, etc. As is to be expected in such a difficult group, it is by no means easy to determine the status of some of the forms considered, this being especially true of the bamboos. Unfortunately numerous species of *Bambusa* have been based wholly on the descriptions or figures given by Rumphius, and these must be interpreted by the data given by him. Until more comprehensive collections are made in the Moluccas with special reference to the descriptions and native names given by Rumphius, the exact status of several of these species must remain doubtful.

## ZEA Linnaeus

**ZEA MAYS** Linn. Sp. Pl. (1753) 971.

*Frumentum indicum s. turcicum s. saracenicum* Rumph. Herb. Amb. 5: 202.

This is merely mentioned by Burman in a note appended to the description of *Panicum indicum s. botton*, i. e. *Setaria italica* (Linn.) Kunth. It is cultivated in all parts of the Malay Archipelago.

## COIX Linnaeus

**COIX LACHRYMA JOBI** Linn. Sp. Pl. (1753) 972.

*Lachryma jobi indica* Rumph. Herb. Amb. 5: 193, t. 75.

*Lithospermum amboinicum* Rumph. Herb. Amb. 6: 22, t. 9, f. 1.

AMBOINA, Way tommo, along the banks of a stream, Robinson Pl. Rumph. Amb. 40, August 19, 1913, locally known as *buli buli*.



The plant figured in Volume V of the Herbarium Amboinense was reduced by Linnaeus to *Coix lachryma jobi* in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 130, and in the second edition of his Species Plantarum (1763) 1378, but by error Linnaeus cites *Ova piscium* of Rumphius, rather than *Lachryma jobi indica*; the two are figured on the same plate, and the former is referred by Hasskarl to his *Saccharum edule*. The two figures given by Rumphius represent fairly good habit sketches of the common Job's tears, *Coix lachryma jobi* Linn. *Lithospermum amboinicum* was also reduced by Linnaeus, op. cit. 25, 134, to *Coix lachryma jobi*, but by error *t.* 8 is cited instead of *t.* 9, although the Rumphian name is correctly given.

#### IMPERATA Cyrillo

IMPERATA CYLINDRICA (Linn.) Beauv. Agrost. (1812) expl. pl. 5, *t.* 5, *f.* 1, var. KOENIGII (Retz.) Benth. ex Pilger in Perk. Frag. Fl. Philip. (1904) 137.

*Saccharum koenigii* Retz. Obs. 5 (1789) 16.

*Gramen caricosum* Rumph. Herb. Amb. 6: 17, *t.* 7, *f.* 2A.

AMBOINA, Hoetoemoeri road, on barren hillsides, *Robinson Pl. Rumph. Amb.* 39, September 30, 1913.

*Gramen caricosum* was referred by Linnaeus, Syst. ed. 10 (1759) 869, to his *Saccharum spicatum*, but later, Sp. Pl. ed. 2 (1763) 1480, to his *Andropogon caricosus*. The latter species, however, was based on Indian specimens and is a true *Andropogon*. Although the specific name was taken from Rumphius, the Rumphian figure and description cannot be interpreted as the type. *Saccharum spicatum* Linn. is in itself a mixture, but probably should be interpreted as an *Imperata*, not as *Perotis latifolia* Ait. The erroneous reference of *Gramen caricosum* to *Andropogon caricosus* by Linnaeus was followed by Burman f., Fl. Ind. (1768) 218; by Lamarck, Encycl. 1 (1785) 373; and by Willdenow, Sp. Pl. 4<sup>2</sup> (1805) 902. Loureiro, Fl. Cochinch. (1790) 53, follows the first Linnean reduction and considers it under *Saccharum spicatum* Linn., while Roxburgh, Fl. Ind. ed. 2, 1 (1832) 234, places it under *Saccharum cylindricum* Linn. = *Imperata cylindrica* Beauv.

#### MISCANTHUS Andersson

MISCANTHUS SINENSIS Anders. in Oefv. Vet. Akad. Forhandl. Stockh. (1855) 166.

*Arundo farcta* L Rumph. Herb. Amb. 4: 21.

*Arundo farcta* Rumph. was referred by Linnaeus, with doubt, to *Andropogon nardus* Linn., Mant. 2 (1771) 500, in which dis-

position of it he was followed by Lamarck, *Encycl.* 1 (1785) 374. Burman f., *Fl. Ind.* (1768) 30, however, placed it under *Lagurus paniculatus* Linn., which species is there properly published, and which is not included in *Index Kewensis*; it is, however, a synonym of *Andropogon nardus* Linn. The Rumphian plant, however, has nothing to do with *Andropogon nardus*, but undoubtedly is a *Miscanthus*.

**MISCANTHUS JAPONICUS** (Thunb.) Anders. in *Oefv. Vet. Akad. Forhandl.* Stockh. (1855) 166.

*Saccharum japonicum* Thunb. in *Trans. Linn. Soc.* 2 (1794) 328.

*Arundo farcta* II Rumph. *Herb. Amb.* 4: 21, t. 6.

AMBOINA, Hoenet, on dry hills, altitude about 50 meters, *Robinson Pl. Rumph. Amb.* 38, October 7, 1913.

The description is short and imperfect, but apparently applies to this species, which, as currently interpreted, is of very wide distribution in eastern Asia and Malaya. It is possible that the species intended by the Rumphian description is *Miscanthus floridulus* (Labill.) Warb., which Warburg considers to be specifically distinct from the northern form, typical *Miscanthus japonicus* Anders. Rumphius describes the plant as from 10 to 12 feet high, while *Arundo farcta* I is described as smaller.

#### SACCHARUM Linnaeus

**SACCHARUM OFFICINARUM** Linn. *Sp. Pl.* (1753) 54.

*Arundo saccharifera* Rumph. *Herb. Amb.* 5: 186, t. 74, f. 1, 2.

*Ova piscium* Rumph. *Herb. Amb.* 5: 191, t. 75, f. 1?

The common sugar cane is not represented in our Amboina collections. Three or four distinct varieties are considered by Rumphius, under such names as *alba*, *fusca*, *rotanga*, etc. The reduction of *Arundo saccharifera* Rumph. to *Saccharum officinarum* was made by Linnaeus in *Stickman's Herb. Amb.* (1754) 20, *Amoen. Acad.* 4 (1759) 130, *Syst. ed.* 10 (1759) 869, *Sp. Pl. ed.* 2 (1762) 79, followed by various authors. Hasskarl, *Neue Schlüssel* (1866) 110, has carried the reduction of the various forms described by Rumphius to varieties, and considers *Arundo saccharifera* III, *tabu rottang* (*expl. pl.*) to represent *Saccharum sinense* Roxb. However, Hackel, apparently correctly, reduces *Saccharum sinense* Roxb. to *S. officinarum* Linn. *Ova piscium* Rumph., referred by Hasskarl to *Saccharum edule* Hassk., is probably a form of *Saccharum officinarum* Linn. It was, by error, referred by Linnaeus to *Coix lachryma jobi* L. but Linnaeus manifestly intended figure 2 of plate 75, rather than figure 1.

## ISCHAEMUM Linnaeus

ISCHAEMUM TIMORENSE Kunth Rév. Gram. 1 (1835) 369, t. 98.

*Hippogrostis amboinica* I major Rumph. Herb. Amb. 6: 14, t. 5, f. 2?

AMBOINA, Batoe mera, along ditches, *Robinson Pl. Rumph. Amb.* 47, July 20, 1913.

This figure has been confused by some authors with *Panicum colonum* Linn., and Hasskarl, Neue Schlüssel (1866) 153, so refers it. I am not quite certain that it is referable to *Ischaemum timorense* Kunth., but it surely is not *Panicum colonum* Linn., although Hasskarl was apparently satisfied with this reference of it.

## ANDROPOGON Linnaeus

ANDROPOGON ACICULATUS Retz. Obs. 5 (1789) 22.

*Rhaphis trivialis* Lour. Fl. Cochinch. (1790) 553.

*Gramen aciculatum* Rumph. Herb. Amb. 6: 13, t. 5, f. 1.

AMBOINA, Amahoesoe, along roadsides, *Robinson Pl. Rumph. Amb.* 45, August 13, 1913, locally known as *rumput gintang*.

Linnaeus, Species Plantarum ed. 2 (1762) 84, erroneously referred *Gramen aciculatum* to *Panicum colonum* Linn., but while citing the name *Gramen aciculatum* he gives the figure as t. 5, f. 3, which is apparently an *Oplismenus*. Loureiro cites *Gramen aciculatum* in his description of *Rhaphis trivialis*, Fl. Cochinch. (1790) 553; Willdenow, Sp. Pl. 1 (1797) 338, repeats Linnaeus's error in referring it to *Panicum colonum*, citing the Rumphian name, but t. 5, f. 3, as does Linnaeus, but later, op. cit. 4<sup>2</sup> (1805) 906, refers *Gramen aciculatum* t. 5, f. 1, to *Andropogon acicularis* Willd.=*A. aciculatus* Retz. Rumphius's figure is an excellent one.

ANDROPOGON SORGHUM (Linn.) Brot. Fl. Lusit. (1804) 89, var.

*Holcus sorghum* Linn. Sp. Pl. (1753) 1047.

*Sorghum s. Battari* Rumph. Herb. Amb. 5: 194, t. 75 bis, fig. 1.

This is not represented in our Amboina collections. The form described and crudely figured by Rumphius is apparently the one described by Linnaeus as *Holcus saccharatus*=*Andropogon sorghum* var. *saccharatus* Hack. It was reduced to *Holcus saccharatus* by Linnaeus in Stickman Herb. Amb. (1754) 20, followed in Amoen. Acad. 4 (1759) 130 (plate cited as 74 by error), Syst. ed. 10 (1759) 1305, followed by Loureiro, Fl. Cochinch. (1790) 645, and Willdenow, Sp. Pl. 4<sup>2</sup> (1805) 930. Burman f., however, Fl. Ind. (1768) 220, refers it to *Holcus sorghum* Linn., in which he is followed by Lamarck, Encycl. 3 (1789) 140. Following Hackel's classification, it is probably best placed under

*Andropogon sorghum* Brot., subsp. *sativus* Hack. var. *saccharatus* (L.) Hack. Following other authors, it is considered under the generic name *Sorghum*, while Hitchcock proposes to recognize the genus *Holcus* for the sorghums, and retains the Linnean names, *Holcus sorghum*, *H. saccharatus*, etc.; *Holcus* of authors, as typified by the European *Holcus lanatus* Linn., becomes *Nothoholcus*.

**ANDROPOGON AMBOINICUS** (Linn.) comb. nov.

*Poa amboinica* Linn. Mant. 2 (1771) 557 (type!).

*Poa amboinensis* Murr. in Linn. Syst. ed. 13 (1774) 98 (type!).

*Eragrostis amboinensis* Trin. ex Steud. Nomencl. ed. 2, 1 (1840) 562 (type!).

*Phoenix amboinica montana* Rumph. Herb. Amb. 6: 19, t. 7, f. 3.

AMBOINA, Soja road, on grassy hillsides, altitude 300 meters, *Robinson Pl. Rumph. Amb. 43*, August 1, 1913.

The specimen agrees perfectly with the description given by Rumphius, and sufficiently well with the figure, which is rather crude. The species has not been previously recognized, and *Poa amboinica* Linn.=*Poa amboinensis* Murr. is reduced in Index Kewensis to *Eragrostis amboinensis* Trin., this being merely a transfer of the specific name by Steudel. *Poa amboinica* Linn. is based wholly on Rumphius's description and figure from which the species must be interpreted.

*Andropogon amboinicus* (Linn.) Merr., if interpreted in a broad sense, is identical with *Andropogon serratus* Thunb.; and, if Hackel be followed in considering Thunberg's species as including several varieties, the Linnean specific name will replace Thunberg's. However, *Andropogon amboinicus* is apparently the form mentioned by Hackel under *Andropogon serratus* Thunb. var. *genuinus* Hack. subvar. *major* Hack. in DC. Monog. Phan. 6 (1889) 521. The Amboina specimen differs radically from typical *Andropogon serratus* Thunb. in its long-pilose sheaths and larger spikelets and probably should be considered specifically distinct.

**ANDROPOGON CITRATUS** DC. Cat. Hort. Monsp. (1813) 78; Nees in Allgem. Gartenzeit. 3 (1835) 266.

*Cymbopogon citratus* Stapf in Kew Bull. (1906) 322, 357, plate.

*Schoenanthemum amboinicum* Rumph. Herb. Amb. 5: 181, t. 72, f. 2.

This species is not represented in our Amboina collections. For a very full discussion of it the student is referred to Doctor Stapf's article.\* *Schoenanthemum amboinicum* has very generally been confused with *Andropogon schoenanthus* Linn.; in

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\* The oil-grasses of India and Ceylon. *Kew Bull.* (1906) 297-364.

fact one year after *Andropogon schoenanthus* was published, Linnaeus himself referred to it the Rumphian figure in Stickman's dissertation on the Herbarium Amboinense (1754) 20, which was repeated in Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1304; in Murray's edition of the Systema Vegetabilium (1774) 758; by Loureiro, Fl. Cochinch. (1790) 646; and by Burman f., Fl. Ind. (1768) 219; the last author also in the same work, page 24, erroneously referring it to *Panicum polystachion* Linn.

**ANDROPOGON EXALTATUS** R. Br. Prodr. (1810) 202.

*Schoenanthemum alterum* Rumph. Herb. Amb. 5: 182?

AMBOINA, Silali, on barren hills, altitude 125 meters, *Robinson Pl. Rumph. Amb. 46*, September 22, 1913, locally known as *kusu kusu*.

Hasskarl has suggested *Andropogon circinnatus* Hochst. as the possible place for this form briefly mentioned by Rumphius. As what I take to be a form of *Andropogon exaltatus* R. Br. occurs in Amboina and as this has fragrant leaves, I merely make the suggestion that it may be the species intended by Rumphius. The species has been previously reported only from Australia and from Thursday Island.

#### THEMEDA Forskål

**THEMEDA FRONDOSA** (R. Br.) comb. nov.

*Anthistiria frondosa* R. Br. Prodr. (1810) 200.

*Themeda arguens* Hack. in DC. Monog. Phan. 6 (1889) 657, non *Stipa arguens* Linn.

*Gramen arguens* Rumph. Herb. Amb. 6: 15, t. 6, f. 1.

AMBOINA, Way tommo, in waste places, *Robinson Pl. Rumph. Amb. 62*, August 16, 1913. CELEBES, Macassar, *Rel. Robins. 2452*, July 11, 1913.

The type of *Stipa arguens* Linn. was an Indian specimen, although the specific name was taken from Rumphius, and *Gramen arguens* Rumph. is cited in the original description. The actual type, in the Linnean herbarium, is the form described by Hackel as *Themeda ciliata* (Linn. f.) Hack., to which the name *Themeda arguens* must now be applied. The Linnean description was manifestly based on the specimen before him, not on the Rumphian illustration; and, accordingly, the name should go with the plant he described. The error in referring the Rumphian illustration to the Indian species was a very natural one.

**THEMEDA GIGANTEA** (Cav.) Hack. in DC. Monog. Phan. 6 (1889) 670.

*Anthistiria gigantea* Cav. Ic. 5 (1799) 36, t. 458.

*Calamagrostis* Rumph. Herb. 6: 16, t. 6, f. 2.

This species is not represented in our Amboina collections, but

the above disposition of Rumphius's *Calamagrostis* is suggested as its probable true position. Linnaeus, Sp. Pl. ed. 2 (1762) 65, referred it to his *Schoenus lithospermus*=*Scleria lithosperma* Sw., in which he was followed by Burman f., Fl. Ind. (1768) 19. Willdenow, however, Sp. Pl. 4 (1805) 315, referred it to *Scleria tessellata* Willd., in which he has been followed by several other authors. The plant, as described by Rumphius, has nothing to do with *Scleria*, but is manifestly a coarse grass, and it is certainly *Anthistiria gigantea* Hack., as suggested above. The figure is very poor.

#### DIGITARIA Scopoli

**DIGITARIA SANGUINALIS** (Linn.) Scop. Fl. Carn. ed. 2, 1 (1772) 52, var.

*Panicum sanguinale* Linn. Sp. Pl. (1753) 57.

*Gramen caninum* Rumph. Herb. Amb. 6: 11.

*Gramen supplex* Rumph. l. c. 12?

AMBOINA, in sago swamp near the town of Amboina, Robinson Pl. Rumph. Amb. 50, August 20, 1913.

This is apparently *Gramen caninum* Rumph., described as having two spikes. *Gramen supplex* Rumph. is described as having three or four spikes. Both appear to be merely forms of the polymorphous *Digitaria sanguinalis* (Linn.) Scop.

#### PANICUM Linnaeus

**PANICUM REPTANS** Linn. Syst. ed. 10 (1759) 870.

*Panicum prostratum* Lam. Ill. 1 (1791) 171.

*Gramen anatum* Rumph. Herb. Amb. 6: 13.

BOETON, Rel. Robins. 2496, July 13, 1913; not represented in the Amboina collection.

In this reduction of *Gramen anatum* I follow Hasskarl's suggestion, who refers it with doubt to *Panicum prostratum* Lam. I can see no reason for considering the Rumphian plant other than this species; the Linnean name is, however, the older.

**PANICUM STAGNINUM** Retz. Obs. 4 (1786) 17.

*Champeu s. Campee*, Rumph. Herb. Amb. 6: 11.

The description is very brief, but probably *Panicum stagninum* Retz. is the form intended. Hasskarl has suggested *Panicum limnaeum* Steud., but this is very improbable, *P. limnaeum* Steud. being reduced in Index Kewensis to *Panicum molle* Sw. The material considered by Rumphius was from Batavia, Java. Koorders, Exkurs. Fl. Java 1 (1911) 129, gives *tjampea* as the Sundanese name for *Panicum stagninum* Retz.

**PANICUM PALMAEFOLIUM** Koenig in Naturf. 23 (1788) 208.

*Angraecum terrestre alterum* Rumph. Herb. Amb. 6: 115?

The description is rather indefinite, but apparently applies to *Panicum palmaefolium* Koenig. The reduction follows Hasskarl's suggestion, Neue Schlüssel (1866) 171, who thought that it was either *Panicum palmaefolium* Koenig or *P. nepalense* Spreng.

#### OPLISMENUS Beauvois

**OPLISMENUS COMPOSITUS** (Linn.) Beauv. Agrost. (1812) 54.

*Panicum compositum* Linn. Sp. Pl. (1753) 57.

*Hippogrostis amboinica* II minor Rumph. Herb. Amb. 6: 14, t. 5, f. 3.

Linnaeus, Amoen. Acad. 4 (1759) 133, reduced *Hippogrostis amboinica* to *Panicum colonum*, merely citing the number of the plate. There are three figures on the plate: one, *Andropogon aciculatus* Retz., that manifestly Linnaeus did not intend to refer to *Panicum colonum*; two, what I take to be *Ischaemum timorense* Kunth, and which does not resemble *Panicum colonum*; and three, what I take to represent *Oplismenus compositus* Beauv., probably the figure that Linnaeus intended to refer to *Panicum colonum*. However, it certainly is not this species. Later, Linnaeus did refer t. 6, f. 3, to *Panicum patens*, Mant. 2 (1771) 323, apparently following Burman f., Fl. Ind. (1768) 26, but *Panicum patens* Burm. f. has nothing to do with *Panicum patens* Linn. Lamarck, Encycl. 4 (1798) 742, refers it to his *Panicum bromoides*, which is presumably the same as *Oplismenus burmannii* Beauv. *Oplismenus compositus* Beauv. does not appear in our Amboina collections, but *O. burmannii* Beauv. is represented by *Rel. Robins. 1645*, collected in forests at Ayer putri, July 29, 1913. It does not however, agree with Rumphius's description of *Hippogrostis amboinica* or with the figure cited above.

#### SETARIA Beauvois

**SETARIA FLAVA** (Nees) Kunth Rev. Gram. 1 (1829) 46.

*Panicum flavum* Nees in Mart. Fl. Bras. 2 (1829) 180.

*Panicum polystachion* Linn. Syst. ed. 10 (1759) 870, Sp. Pl. ed. 2 (1762) 82 (type!), non *Setaria polystachya* Schrad., nec Scheele.

*Panicum vulpinum* Linn. Amoen. Acad. 4 (1759) 134 (type!), non Willd., nec *Setaria vulpina* Beauv.

*Gramen vulpinum* Rumph. Herb. Amb. 6: 18, t. 7, f. 2B.

AMBOINA, Soja road, Lateri, and Gelala, *Robinson Pl. Rumph. Amb. 41*, August, September, 1913.

The Rumphian reference is the whole basis of both *Panicum vulpinum* Linn., which does not appear in Index Kewensis, and

*Panicum polystachion* Linn., the former based on "*Gramen caricosum vulpinum*" the latter on Vol. VI "t. 7, f. 2B," and erroneously reduced in Index Kewensis to *Andropogon caricosum* L. Both Linnean specific names are invalid in *Setaria*, although both are much older than *Panicum flavum* Nees. By Burman f., Fl. Ind. (1768) 24, it was considered under *Panicum polystachion* Linn., and it was also so considered by Loureiro, Fl. Cochinch. (1790) 46. The species is very generally considered to be a synonym of *Setaria glauca* (Linn.) Beauv., but is apparently distinct.

**SETARIA ITALICA** (Linn.) Beauv. Agrost. (1812) 51.

*Panicum italicum* Linn. Sp. Pl. (1753) 56.

*Panicum indicum* Rumph. Herb. Amb. 5: 202, t. 75 bis, f. 2.

The figure is a good representation of one of the commonly cultivated forms of this species, with the addition of the panicle of another form. It was reduced to *Panicum italicum* by Linnaeus in Stickman Herb. Amb. (1754) 20, repeated in Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 870, Sp. Pl. ed. 2 (1762) 83; followed by Burman f., Fl. Ind. (1768) 24, Loureiro, Fl. Cochinch. (1790) 46, Willdenow, Sp. Pl. 1 (1797) 336, and other authors. For a critical botanical consideration of the numerous varieties and forms of *Setaria italica* see Hubbard in Am. Journ. Bot. 2 (1915) 169-198.

#### THUAREA Persoon

**THUAREA INVOLUTA** (Forst.) R. Br. ex Steud. Nomencl. ed. 2, 2 (1841) 682.

*Ischaemum involutum* Forst. Prodr. (1786) 73.

*Thuarea sarmentosa* Pers. Syn. 1 (1805) 110.

*Gramen roris* (litoreum) Rumph. Herb. Amb. 6: 13.

AMBOINA, Hatiwe, along the strand, *Robinson Pl. Rumph. Amb.* 51, September 4, 1913.

The description is very short, and the identification has been made chiefly from the indicated habitat. Hasskarl refers here *Gramen roris* as described on page 12 and is perhaps correct in doing so. R. Brown, Prodr. (1810) 197, does not publish *Thuarea involuta* as currently indicated in botanical literature, but merely indicates that *Ischaemum involutum* Forst. pertains to the genus *Thuarea*.

#### SPINIFEX Linnaeus

**SPINIFEX LITTOREUS** (Burm. f.) Merr. in Philip. Journ. Sci. 7 (1912) Bot. 229.

*Stipa littorea* Burm. f. Fl. Ind. (1768) 29.

*Stipa spinifex* Linn. Mant. 1 (1767) 84.



*Spinifex squarrosus* Linn. Mant. 2 (1771) 300.

*Cyperus littoreus* Rumph. Herb. Amb. 6: 6, t. 2, f. 2.

This species is not represented in our Amboina collection. It is a very widely distributed grass, occurring on sandy beaches in the Indo-Malayan region, and Rumphius gives a good figure of the pistillate plant. *Cyperus littoreus* is, by citation, the type of *Stipa littorea* Burm. f., and the specific name is taken from Rumphius; however, it is perfectly evident that Burman f. also had actual specimens of the same plant. It is also cited by Linnaeus in the original publication of *Stipa spinifex* Linn., Mant. 1 (1767) 34, and under *Spinifex squarrosus* Linn. by Willdenow, Sp. Pl. 4<sup>2</sup> (1805) 1129; by Loureiro, Fl. Cochinch. (1790) 647; and by other authors.

#### ORYZA Linnaeus

ORYZA SATIVA Linn. Sp. Pl. (1753) 333.

*Oryza vulgaris* Rumph. Herb. Amb. 5: 196.

*Oryza glutinosa* Rumph. op. cit. 201.

Rice is not represented in our Amboina collections. Six forms are described under *Oryza vulgaris*, and three under *Oryza glutinosa*, but all are manifestly cultural forms of the polymorphous species *Oryza sativa* Linn. *Oryza communissima* Lour., *O. praecox* Lour., *O. montana* Lour., and *O. glutinosa* Lour., Fl. Cochinch. (1790) 215, while based primarily on specimens from China or Cochin-China, all have references to Rumphius. Linnaeus, by error, refers t. 74 to *Oryza*, in Amoen. Acad. 4 (1759) 130. Table 74 is *Saccharum officinarum*, while table 75 bis, the plate apparently intended by Linnaeus, represents a form of *Andropogon sorghum* Linn. and *Setaria italica* Kunth; table 75 represents *Coix lachryma jobi* Linn. and apparently a form of *Saccharum officinarum*, probably the species proposed by Hasskarl as *Saccharum edule* Hassk. The common rice plant is not figured by Rumphius.

#### CYNODON \* Persoon

CYNODON DACTYLON (Linn.) Pers. Syn. 1 (1804) 85.

*Panicum dactylon* Linn. Sp. Pl. (1753) 58.

*Capriola dactylon* O. Ktze. Rev. Gen. Pl. 1 (1891) 764.

*Gramen repens minus* Rumph. Herb. Amb. 6: 11.

This common and widely distributed species is not represented in our Amboina collection. Hasskarl has made this reduction of *Gramen repens minus* with doubt, but it is perfectly evident that *Cynodon dactylon* Pers. is the plant described by Rumphius.

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\* Retained name, Vienna Code; *Capriola* Adans. (1763) is older.

## ELEUSINE Gaertner

**ELEUSINE INDICA** (Linn.) Gaertn. Fruct. 1 (1781) 8.

*Cynosurus indicus* Linn. Sp. Pl. (1753) 72.

*Gramen vaccinum* Rumph. Herb. Amb. 6: 9, t. 4, f. 2.

AMBOINA, Batoe mera, in ditches and along roadsides, *Robinson Pl. Rumph. Amb.* 48, July 20 and August 15, 1913.

This common and widely distributed grass is well represented by Rumphius's figure, which was first referred by Linnaeus, Sp. Pl. ed. 2 (1762) 106, to *Cynosurus indicus*, in which he has been followed by Burman f., Fl. Ind. (1768) 29; by Lamarck, Encycl. 2 (1786) 187; by Loureiro, Fl. Cochinch. (1790) 59; by Willdenow, Sp. Pl. 1 (1797) 417—all under *Cynosurus*—and by Hasskarl, Neue Schlüssel (1866) 152, under *Eleusine*. The figure is not cited in modern literature.

**ELEUSINE COROCANA** (Linn.) Gaertn. Fruct. 1 (1781) 8, t. 1.

*Cynosurus corocanus* Linn. Syst. ed. 10 (1759) 875.

*Goddam* Rumph. Herb. Amb. 6: 10.

*Pinicum gramineum* Rumph. Herb. Amb. 5: 203, t. 76, f. 2.

Rumphius figured this species from plants grown in Amboina, the seeds having been received by him from Ceylon; it is considered by Hooker f. to be a cultivated form of *Eleusine indica* Gaertn. The figure given by Rumphius was first referred to this species by Linnaeus, Syst. ed. 10 (1759) 875, repeated in his Sp. Pl. ed. 2 (1762) 107; followed by Burman f., Fl. Ind. (1768) 29, by Lamarck, Encycl. 2 (1786) 187, and by Willdenow, Sp. Pl. 1 (1797) 415—all under *Cynosurus corocanus* Linn.—and finally by Hasskarl, Neue Schlüssel (1866) 111. Rumphius's figure is not generally cited by modern authors. The Javan form very briefly described by Rumphius as *Goddam* can scarcely be other than *Eleusine corocana* Gaertn.

## DACTYLOCTENIUM Willdenow

**DACTYLOCTENIUM AEGYPTIUM** (Linn.) Richt. Pl. Europ. 1 (1889) 68.

*Cynosurus aegyptius* Linn. Sp. Pl. (1753) 72.

*Gramen vaccinum femina* Rumph. Herb. Amb. 6: 9, 10, t. 4, f. 1.

AMBOINA, Batoe mera, along roadsides, *Robinson Pl. Rumph. Amb.* 49, August 15, 1912.

This common grass is fairly well represented by Rumphius's figure, although the prolonged rachis is not shown. The habit, together with the relatively thick spikes, unquestionably places the figure cited with *Dactyloctenium* rather than with *Eleusine indica* Gaertn. The figure was first referred here by Linnaeus, in Stickman Herb. Amb. (1754) 25, Amoen. Acad. 4 (1759)

133, Syst. ed. 10 (1759) 875; and later by Loureiro, Fl. Cochinch. (1790) 59, by Roxburgh, Fl. Ind. ed. 2, 1 (1832) 344—all under *Cynosurus*—and finally by Hasskarl, Neue Schlüssel (1866) 152, as *Dactyloctenium aegyptiacum* Willd. The figure is rarely cited in modern literature. The species usually appears in literature as *Dactyloctenium aegyptiacum* Willd.

#### PHRAGMITES Trinius

**PHRAGMITES VULGARIS** (Lam.) Trin. Fund. Agrost. (1820) 134.

*Arundo vulgaris* Lam. Fl. Franc. 3 (1778) 615.

*Arundo phragmites* Linn. Sp. Pl. (1753) 81.

*Canna palustris* Rumph. Herb. Amb. 4: 20, t. 5.

AMBOINA, Wakal, near the beach, *Robinson Pl. Rumph. Amb. 44*, November 5, 1913, known as *tebu-tebu*.

Rumphius describes *Canna palustris* as from 12 to 16 feet high; Robinson notes that his plant, cited above, is from 3 to 4 meters high. Both may be referable to *Phragmites karka* (Retz.) Trin., rather than to *P. vulgaris* Trin. Loureiro, Fl. Cochinch. (1790) 54, erroneously considers it under *Aira arundinacea* Linn. Hasskarl, Neue Schlüssel (1866) 71, has reduced *Canna palustris* Rumph., with doubt, to *Eulalia japonica* Trin. = *Miscanthus japonicus* Anders.; this suggested reduction is impossible, however, as the habitat and other data given by Rumphius apply to *Phragmites*, not to *Miscanthus*. The figure of *Canna palustris* is very crude, and the true position of the species has not before been recognized.

#### ERAGROSTIS Host

**ERAGROSTIS AMABILIS** (Linn.) W. & A. in Hook. & Arn. Bot. Beech. Voy. (1841) 251, excl. descr.

*Poa amabilis* Linn. Sp. Pl. (1753) 68.

*Poa tenella* Linn. Sp. Pl. (1753) 69.

*Eragrostis plumosa* Link Hort. Berol. 1 (1827) 192.

*Eragrostis tenella* R. & S. Syst. 2 (1817) 576.

*Gramen fumi* Rumph. Herb. Amb. 6: 11, t. 4, f. 3.

BALI, *Rel. Robins. 2515, 2532*, July 7, 1913, but not represented in the Amboina collection.

*Gramen fumi* was reduced by Linnaeus to *Poa tenella* Linn., Sp. Pl. ed. 2 (1762) 101, in which he was followed by Burman f., Fl. Ind. (1768) 28, Poiret in Lam. Encycl. 5 (1804) 85, and by various other authors. Roxburgh, Fl. Ind. ed. 2, 1 (1832) 337, refers it to *Poa plumosa* Retz. = *Eragrostis plumosa* Link = *Eragrostis amabilis* (Linn.) W. & A. *Poa amabilis* Linn. is identical with the species commonly known as *Eragrostis tenella*

R. & S. and *E. plumosa* Link. *Poa tenella* Linn. was based on specimens from India and is identical with *Poa amabilis* Linn.; see Munro in Journ. Linn. Soc. Bot. 6 (1862) 43. It is to be noted that in transferring the Linnean specific name to *Eragrostis*, as *E. amabilis*, Wight and Arnott describe a form that is totally distinct from *Poa amabilis* Linn. and is *Eragrostis unioloides* Nees. The specific name *amabilis* manifestly belongs with the plant originally described by Linnaeus, not with *Eragrostis unioloides* Nees.

#### BAMBUSEAE

Under the names *Arundo* and *Arundarbor*, Rumphius has described a number of species and forms of bamboo, which have been very imperfectly understood by later authors, although many species have been based, wholly or in part, on Rumphius's descriptions. These numerous species, chiefly proposed by Loureiro, Roemer and Schultes, and Miquel, have remained doubtful, almost without exception, to the present time. The Amboinian material presents four distinct species, three of which were described by Rumphius, and this material has enabled me to solve several problems in synonymy and definitely to determine the status of a number of specific names in various genera that have been based on Rumphius. The others have been interpreted from the data given by Rumphius, but much field work is necessary before a sufficient amount of data is available properly to interpret the numerous forms named by Rumphius. In this connection it is to be noted that it has been possible definitely to determine the status of every species of bamboo described by Blanco from the Philippines, a total of eight, from field work in connection with Blanco's descriptions and the native names cited by him; yet Blanco's descriptions, on the average, are decidedly inferior to those of Rumphius. Up to 1900 not one of Blanco's species had been definitely placed, those that were considered at all appeared in literature as species of doubtful status. It is confidently expected that the status of most of the species based on Rumphius can be definitely settled by following the policy adopted in the Philippines in working out the identity of Blanco's species. The specimens cited below, with the exception of *Bambusa spinosa* Roxb., of which there were no duplicates, have been critically examined by Mr. J. Sykes Gamble, to whom I am under obligations for his valuable notes, both in connection with the identity of the forms with the Rumphian descriptions and with the names in current use for the several species.

## BAMBUSA Schreber

**BAMBUSA SPINOSA** Roxb. Hort. Beng. (1814) 25 (type!).

*Bambusa spinosa* Blume ex Nees in Flora 8 (1825) 580.

*Bambusa blumeana* Schultes f. Syst. 7<sup>2</sup> (1830) 1343.

*Bambusa teba* Miq. Fl. Ind. Bat. 3 (1857) 418 (type!).

*Arundarbor spinosa* Rumph. Herb. Amb. 4: 14, t. 3.

AMBOINA, back of the town of Amboina, *Robinson Pl. Rumph. Amb. 608*, July 17, 1913, locally known as *bambu duri*.

There is no question that this is *Arundarbor spinosa* of Rumphius, and that it is identical with the widely distributed Malayan *Bambusa blumeana* Schultes f. However, *Bambusa spinosa* Roxb. was based wholly on Rumphius in the original place of publication, Hortus Bengalensis (1814) 25, by citation of "H. A. 4. t. 3;" that is, Herbarium Amboinense Vol. IV, t. 3. Robinson,\* however, states (p. 418): "*Bambusa spinosa* Roxb., as typified by Herb. Amb. 4: pl. 3, is probably not *B. arundinacea* Willd., and there are various points in Rumphius's description, which oppose its identification as *B. Blumeana* Schultes f." Munro † states under *Bambusa blumeana* Schultes f.: "Blume states that this plant is spinous; and there are some traces of spines on the specimens I have seen; but there is nothing to indicate that it is as spinous as *B. agrestis* of Poir. and *Arundarbor spinosa* of Rumph. are described to be." From an examination of the Amboina specimen, Rumphius's description, and with a definite knowledge of this plant as it grows in the field, for it is one of the commonest bamboos in the Philippines, I am thoroughly convinced that *Arundarbor spinosa* is identical with *Bambusa blumeana* Schultes f., but under our rules of nomenclature, the oldest valid specific name is *Bambusa spinosa* Roxb. The plant is remarkable for the dense thicket of interlaced, stiff, very spiny branches that surrounds the lower parts of the culms, and these are well represented by Rumphius's figure. Ordinary herbarium specimens, taken from the upper leafy branches often do not present spines, or at least only few and greatly reduced ones, which accounts for Munro's statement, as he saw only herbarium specimens and did not know the plant in the field.

By Loureiro *Arundarbor spinosa* was reduced to his *Arundo agrestis*, Fl. Cochinch. (1790) 57, but *Arundo agrestis* Lour. was based on specimens from Cochin-China, and apparently is *Bam-*

\* Robinson, C. B. Roxburgh's Hortus Bengalensis. *Philip. Journ. Sci.* 7 (1912) Bot. 410-419.

† Trans. Linn. Soc. 26 (1870) 102.

*busa arundinacea* Retz., not *B. blumeana* Schultes f. Loureiro's species was transferred to *Bambusa* as *B. agrestis* Poir. in Lam. Encycl. 8 (1808) 704. Munro includes Loureiro's species in the synonymy of *Bambusa blumeana* Schultes f., with doubt; I am convinced that it should be transferred to *Bambusa arundinacea* Retz. *Bambusa teba* Miq. is based wholly on Rumphius, for Miquel cites as synonyms *Arundo agrestis* Lour. and *Bambusa agrestis* Poir., specifically excluding all data given by these authors except the Rumphian synonym, *Arundarbor spinosa* Rumph.

**BAMBUSA ATRA** Lindl. in Penny Cyclop. 3 (1835) 357 (type!).

*Bambusa prava* Lindl. l. c. (type!).

*Bambusa picta* Lindl. l. c. (type!).

*Leleba alba, nigra, prava, et lineata* Rumph. ex R. & S. Syst. 7<sup>2</sup> (1830) 1345, 1346.

*Bambusa tenuis* Munro in Trans. Linn. Soc. 26 (1868) 119 (type!).

*Leleba rumphiana* Kurz Cat. Hort. Bogor. (1866) 20 (type!).

*Bambusa rumphiana* Kurz in Journ. As. Soc. Beng. 39<sup>2</sup> (1870) 86.

*Bambusa lineata* Munro in Trans. Linn. Soc. 26 (1868) 118 (type!).

*Arundarbor tenuis* Rumph. Herb. Amb. 4: 1, t. 1 (incl. *alba, nigra, lineata, et prava*).

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb. 32*, August 18, 1913; Caju poeti, *Pl. Rumph. Amb. 33*, August 2, 1913; Lateri, *Robinson Pl. Rumph. Amb. 34*, September 5, 1913; all known as *leleba*.

The synonymy of this species is rather complicated, but *Bambusa atra* Lindl., 1835, based on *Leleba nigra*, is apparently the oldest valid specific name. It is to be noted that the several forms described by Rumphius under the designations *Leleba nigra, prava, picta, lineata*, and *amahussana* are repeated by Roemer and Schultes, Syst. 7<sup>2</sup> (1830) 1345, 1346, under the Rumphian names in a note following *Bambusa verticillata* Willd. "Publication" was not intended, nor have Roemer and Schultes's names been recognized as published.

Regarding the actual specimens cited above, Mr. Gamble writes as follows: "I make Nos. 32, 33, 34 all *Bambusa rumphiana* Kurz. In my *Bambuseae of British India*\* I described this as *Bambusa lineata* Munro, but after publication Sir D. Brandis pointed out to me that Munro's *B. lineata* only referred to one of Rumphius's varieties, while Kurz's name included them all. So I agree with him, but it is best to take Kurz's name. No. 32, I agree, fits best with Rumphius's *Arundo arbor tenuis nigra*, and No. 33 with *A. tenuis alba*; so too No. 34, with very broad leaves, will do for *A. tenuis prava*."

\* Ann. Bot. Gard. Calcutta 7 (1896) 1-133, t. 1-118.

Historically, the first reference to *Arundo arbor tenuis* is found in Loureiro's *Flora Cochinchinensis* (1790) 58, where he refers it to his *Arundo multiplex*. However, *Arundo multiplex* Lour. was primarily based on specimens from Cochin-China and of course must be interpreted from Cochin-China material. It is *Bambusa multiplex* Raeusch, a species of doubtful status, which Munro suggests closely approaches *Bambusa nutans* Wall. Willdenow erroneously referred the Rumphian species to his *Bambusa verticillata*, Sp. Pl. 2 (1799) 245, in which he was followed by many authors. Willdenow's species, however, was based on actual specimens, has nothing to do with the Rumphian plant, and is *Gigantochloa verticillata* Munro. All of the synonyms cited above, except *Bambusa rumphiana* Kurz and *B. lineata* Munro, have previously been considered to represent species of doubtful status.

Var. **AMAHUSSANA** (Lindl.) comb. nov.

*Bambusa amahussana* Lindl. in Penny Cycl. 3 (1835) 357 (type!).

*Bambusa rumphiana* Kurz, var. *amahussana* Gamble in lit.

*Arundarbor amahussana* (i. e. *Leleba amahussana*) Rumph. Herb. Amb. 4: 3.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb. 35*, July 30, 1913, near the beach, 2 to 3 m high, often reclining, locally known as *bambu nitu*.

Regarding this form Mr. Gamble writes as follows: "No. 35 is identified, with much probability, with *Arundarbor tenuis amahussana*. It comes from Amahoesoe and differs from the others in the small spikelets. It is, I think, quite a distinct variety, but only a variety, for dissection of the flowers presents no differential characters. It is characterized by its very small spikelets."

In connection with the various forms of this species it is well to note that Kurz\* has enumerated five varieties under the Malayan names, *Leleba dyahat*, *pootee*, *ietam*, *tootool*, and *soorat*.

**BAMBUSA VULGARIS** Schrad. in Wendl. Collect. Pl. 2 (1810) 26, t. 47.

*Bambusa fera* Miq. Fl. Ind. Bat. 3 (1855) 418 (type!).

*Bambusa vasaria* Munro in Trans. Linn. Soc. 26 (1870) 122 (type!)?

*Arundarbor fera* Rumph. Herb. Amb. 4: 16, t. 4.

*Arundarbor vasaria* s. *Bulu Java* Rumph. Herb. Amb. 4: 8?

*Arundarbor fera* Rumph. is the whole basis of *Bambusa fera* Miq., and it seems to be typical *Bambusa vulgaris* Schrad., a disposition of it suggested by Miquel. Loureiro, *Fl. Cochinch.* (1790) 57, referred it to *Arundo mitis* Lour., a species typified

\* Ind. Forester 1: 341.

by Cochin-China specimens. *Bambusa mitis* Poir., in Lam. Encycl. 8 (1808) 704, is merely a new name for *Arundo mitis* Lour. Loureiro's specimens were from plants cultivated in Cochin-China, and the species may well be the same as *Bambusa vulgaris* Schrad., in which case the specific name *mitis* will have priority. In proposing *Bambusa fera*, Miquel explicitly excludes from the synonyms cited all but the reference to Rumphius.

*Arundarbor vasaria* s. *Bulu Java* Rumph. is the whole basis of *Bambusa vasaria* Munro and is probably the same as *Bambusa vulgaris* Schrad. Munro suggested that it might be the same as *Bambusa balcooa* Roxb., but the distribution of the latter, known only from India, makes this reduction an impossible one. Schultes quotes it under *Bambusa arundinacea* Retz., Loureiro under *Arundo bambos* Lour., while Miquel, Fl. Ind. Bat. 3 (1855) 417, thinks that it may be *Bambusa vulgaris* Schrad. *Arundarbor vasaria* cho Rumph. 4: 10, may also belong here. Under *Arundarbor vasaria* Rumphius describes several other forms, on which, fortunately, subsequent botanists have based no binomials, either wholly or in part. From the data at present available it is impossible to determine their status, and they are accordingly not listed here. The full list is given by Hasskarl, Neue Schlüssel (1866) 69-71.

**BAMBUSA VULGARIS** Schrad. var. **STRIATA** (Lodd.) Gamble in Ann. Bot. Gard. Calcutta 7 (1896) 44.

*Bambusa striata* Lodd. ex Lindl. Penny Cyclop. 3 (1835) 357.

*Arundarbor fera elegantissima* Rumph. Herb. Amb. 4: 16.

The description given by Rumphius applies unmistakably to this form of *Bambusa vulgaris* Schrad., which is widely cultivated in the tropics of the Old World for ornamental purposes.

**BAMBUSA EXCELSA** Miq. Fl. Ind. Bat. 3 (1855) 418 (type!).

*Arundarbor maxima* Rumph. Herb. Amb. 4: 12.

Loureiro, Fl. Cochinch. (1790) 58, referred *Arundarbor maxima* Rumph. to *Arundo maxima* Lour., but his description was based on Cochin-China specimens, which probably represent a species quite different from the one Rumphius described. Poiret, in Lam. Encycl. 8 (1808) 704, transferred it to *Bambusa maxima* Poir. Miquel, however, in proposing the name *Bambusa excelsa*, specifically excludes from the descriptions of Loureiro and Poiret everything except the references to Rumphius; *Melocanna excelsa* Roep., in Trin. Clav. Agrost. (1822) 105, which probably goes with *Arundarbor maxima* Lour., is cited as a doubtful synonym. Munro has suggested that *Bambusa excelsa*



Miq. is a synonym of *Gigantochloa verticillata* Munro. The native names given by Rumphius are *bulu sammet*, *bulu gantang*, *bulu wani besaar*, *terin maysele*, and *tabatiko sammat*. I suspect that it is, at least in part, *Dendrocalamus giganteus* Munro.

## GIGANTOCHLOA Kurz

GIGANTOCHLOA ASPERA (Schultes) Kurz ex Koord. Exkurs. Fl. Java 1 (1911) 176.

*Bambusa aspera* Schultes Syst. 7<sup>2</sup> (1830) 1352 (type!).

*Arundarbor aspera* Rumph. Herb. Amb. 4: 11, t. 2.

Munro,\* sub *Gigantochloa atter* Kurz, states: "Kurz, in his notes, identifies this species [*Gigantochloa atter*] with *Bambusa aspera* and *B. bitung* Roem. & Sch." to which Kurz † rejoins: "I do not understand this interpretation in which I am said to have identified 2 such species, as those alluded to, which differ *toto coelo*! As far as I am aware I have identified *B. aspera* with *B. Bitung*, but surely not these two with *B. atter*. The one is (sententia Munroana) a *Dendrocalamus*, the other a *Gigantochloa*." He then adds a diagnosis of *Bambusa aspera* as he understands the species, but which is not published under *Gigantochloa*. The range is given as "Indian Archipelago, from the Moluccas to Singapore." *Bambusa aspera* R. & S. is not mentioned by Gamble,‡ but *Bambusa bitung* R. & S. is placed as a probable synonym under *Dendrocalamus flagellifer* Munro. Camus § likewise does not mention *Bambusa aspera* R. & S., but follows Munro and Gamble in the disposition of *Bambusa bitung* R. & S. I have found no transfer of the species to *Gigantochloa* antedating that made by Koorders, cited above. The species, which is one of doubtful status, may be a *Dendrocalamus*.

## DINOCHLOA Büse

DINOCHLOA sp.?

*Boeloe rottang* Rumph. Herb. Amb. 5: 119.

The description manifestly applies to some scandent species of bamboo, which might be either of the genus *Dinochloa* or *Schizostachyum*. Hasskarl, Neue Schlüssel (1866) 102, referred it with doubt to *Dinochloa tjankorreh* Büse=*D. scandens* O. Ktze., but in the absence of material from Amboina representing any scandent bamboo, all reductions of *Boeloe rottang* must be uncertain.

\* Trans. Linn. Soc. 26 (1870) 125.

† Journ. As. Soc. Beng. 39<sup>2</sup> (1870) 87.

‡ Ann. Bot. Gard. Calcutta 7 (1896) 1-133, t. 1-118.

§ Les Bambusées (1913) 1-215.

## SCHIZOSTACHYUM Nees

**SCHIZOSTACHYUM BRACHYCLADUM** Kurz in Journ. As. Soc. Beng. 39<sup>2</sup> (1870) 89.

*Arundarbor cratium* Rumph. Herb. Amb. 4: 5.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 36*, August 11, 1913; Lateri, *Robinson Pl. Rumph. Amb. 37*, August 26, 1913, locally known as *bulu jawa* and *bulu seru*, in dense clumps, culms from 5 to 10 meters high, the internodes 35 to 90 cm in length.

In regard to the numbers cited, Mr. Gamble writes as follows: "I think that you have correctly identified these with *Arundarbor cratium*. The specimens are quite good ones of *Schizostachyum brachycladum* Kurz, and agree with a series of specimens from Java and the Philippines as well as with specimens from cultivated plants in the Calcutta garden." Loureiro, Fl. Cochinch. (1790) 58, referred *Arundarbor cratium* to *Arundo fax* Lour., a species based on Cochinchina specimens and probably not the same as the Amboina form. *Melocanna humilis* Roep., ex Trin Clav. Agrost. (1822) 105, is merely a new name for *Arundo fax* Lour. *Beesha humilis* Kunth, Enum. 1 (1833) 434, and *Beesha fax* R. & S., Syst. 7<sup>2</sup> (1830) 1336, are also synonyms of *Arundo fax* Lour. and like Loureiro's species are not to be interpreted by the latter's erroneous reduction of *Arundarbor cratium* Rumph. Rumphius briefly describes six forms following *Arundarbor cratium*, but the descriptions are not sufficiently definite to warrant the reduction of any of them. They may or may not be variants of *Schizostachyum brachycladum* Kurz. See also under *Schizostachyum* sp. (*Bambusa longinodis* Miq.).

**SCHIZOSTACHYUM** sp.

*Bambusa longinodis* Miq. Fl. Ind. Bat. 3 (1855) 418 (type!).

*Arundarbor spiculorum* Rumph. Herb. Amb. 4: 7.

Miquel's species was based wholly on Rumphius, as he specifically includes from *Bambusa tabacaria* Poir. (*Arundo tabacaria* Lour.) only the reference to Rumphius. Loureiro, Fl. Cochinch. (1790) 68, quotes Rumphius's species as a synonym of *Arundo tabacaria* Lour., a species based on Cochinchina specimens undoubtedly different from the Amboina plant; *Bambusa tabacaria* Poir. is merely a new name for Loureiro's species and must be interpreted from Loureiro's description, not from Rumphius. *Bambusa longinodis* Miq. is unquestionably a species of *Schizostachyum* closely allied to the Philippine *Schizostachyum lima* (Blanco) Merr. (*S. hallieri* Gamble) and

to *Schizostachyum brachycladum* Kurz. It is barely possible that the Lateri specimen, cited above under *Schizostachyum brachycladum* Kurz (*Pl. Rumph. Amb.* 37) and described by Doctor Robinson as having internodes 60 to 90 cm in length, may be *Arundarbor spiculorum* Rumph. In *Pl. Rumph. Amb.* 36, also cited under *Schizostachyum brachycladum* Kurz, the internodes are from 35 to 40 cm in length, but the branches, leaves, inflorescence, and spikelets are identical in both specimens.

## BAMBUSEAE OF UNCERTAIN STATUS

The following forms of bamboo described by Rumphius are undeterminable, and fortunately, with possibly one exception, they have not been made the basis of binomials by subsequent authors:

*Arundarbor fera silvestris* Rumph. Herb. Amb. 4: 16.

This is probably the same as *Bambusa spinosa* Roxb.

*Arundarbor ferae* adf. Rumph. Herb. Amb. 4: 18.

*Arundarbor fera nigra* Rumph. Herb. Amb. 4: 18.

This may be *Bambusa nigra* Lodd., where it has been placed by several authors.

*Arundarbor fera s. cha* Rumph. Herb. Amb. 4: 18.

*Arundarbor fera s. bulu tsjatjar* Rumph. Herb. Amb. 4: 18.

*Arundarbor fera s. Arundo japonica* Rumph. Herb. Amb. 4: 18.

## CYPERACEAE

## KYLINGA Rottboell

KYLINGA MONOCEPHALA Rottb. Descr. et Ic. Pl. (1773) 13, t. 4, f. 4.

*Gramen capitatum* Rumph. Herb. Amb. 6: 8, t. 3, f. 2.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 429, July 25, 1913, in meadows near sea level, associated with *Kyllinga brevifolia* Rottb. (*Rel. Robins.* 1897).

The figure presents a good habit sketch of what might be either *Kyllinga monocephala* Rottb. or *K. brevifolia* Rottb., but as the inflorescence is described as white, I have referred the Rumphian figure and description to *Kyllinga monocephala*; the inflorescence of *K. brevifolia* Rottb. is usually, if not always, green instead of white. Historically, the Rumphian figure was first considered by Linnaeus, in *Stickman Herb. Amb.* (1754) 25, *Amoen. Acad.* 4 (1759) 133, where it is erroneously reduced to *Scirpus glomeratus* Linn. Burman f., *Fl. Ind.* (1768) 18, and Loureiro, *Fl. Cochinch.* (1790) 41, erroneously refer it to *Schoenus coloratus* Linn. Lamark, however, *Encycl.* 3 (1789) 366, correctly reduced it to *Kyllinga monocephala* Rottb., this reduction being very generally accepted by subsequent authors.

## REMIREA Aublet

**REMIREA MARITIMA** Aubl. Pl. Guin. (1775) 45, t. 16.

*Cyperus longus* Rumph. Herb. Amb. 6: 5, t. 2, f. 1.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb. 436*, September 4, 1913, growing on the strand.

The specimen agrees entirely with Rumphius's description and with the excellent figure given by him. The identity of *Cyperus longus* with *Remirea maritima* has not been previously suggested. By Kunth, Enum. 2 (1837) 94, it was erroneously reduced to *Cyperus kyllingioides* Vahl, following Roemer and Schultes, Mant. 2 (1824) 98, who, however, cite by error Rheede's Hortus Malabaricus, rather than Rumphius. This reduction is followed by Hasskarl, Neue Schlüssel (1866) 152.

## PYCREUS Beauvois

**PYCREUS ODORATUS** (Linn.) Urb. Symb. Antil. 2 (1900) 164.

*Cyperus odoratus* Linn. Sp. Pl. (1753) 46, excl. syn. Sloane.

*Pycreus polystachyus* Beauv. Fl. Oware et Benin 2 (1807) 48, t. 86, f. 2.

*Cyperus polystachyus* R. Br. Prodr. (1810) 214.

*Cyperus floridus* *Il mas* Rumph. Herb. Amb. 6: 2, t. 1, f. 2.

AMBOINA, near the town of Amboina, along sandy beaches, *Robinson Pl. Rumph. Amb. 431*, August 22, 1913.

Hasskarl, Neue Schlüssel (1866) 151, refers both figures 1 and 2 of table 1 to *Cyperus rotundus* Linn. Figure 1 is certainly correctly referred by him, but figure 2 and the description of *Cyperus floridus mas* appear to me to agree better with the common and widely distributed *Pycreus odoratus* Urb.

## CYPERUS Linnaeus

**CYPERUS ROTUNDUS** Linn. Sp. Pl. (1753) 45.

*Cyperus rotundus bulbosus sive legitimus* Rumph. Herb. Amb. 6: 1, t. 1, f. 1.

This common species is not represented in our Amboina collections, but there is not the slightest doubt as to the correctness of this reduction, which follows both Kunth and Hasskarl.

## ELEOCHARIS R. Brown

**ELEOCHARIS DULCIS** (Burm. f.) Trin. ex Henschel Vita Rumph. (1833) 186.

*Andropogon dulcis* Burm. f. Fl. Ind. (1768) 219 (type!).

*Hippuris indica* Lour. Fl. Cochinch. (1790) 16.

*Carex tuberosa* Blanco Fl. Filip. (1837) 35.

*Cyperus dulcis* Rumph. Herb. Amb. 6: 7, t. 3, f. 1.

This species is not represented in our Amboina collections, but the Rumphian figure unmistakably represents a plant allied to *Eleocharis tuberosa* Schultes, which is possibly but a tuber-bearing form of *Eleocharis plantaginoidea* (Rottb.) W. F. Wight (*Scirpus plantaginoides* Rottb., *Eleocharis plantaginea* R. Br., *Scirpus plantagineus* Retz.). Rumphius's *Cyperus dulcis* is in part the basis of Burman's *Andropogon dulcis*, this author also citing a figure in Plukenet. There is no indication that Burman had actual specimens, the Rumphian reference is the first one given, and the specific name is taken from Rumphius; therefore, I have interpreted *Cyperus dulcis* as the type. In Index Kewensis *Andropogon dulcis* Burm. f. is reduced to *Sorghum vulgare*. The Malayan form very closely approaches the one cultivated in southern China, known in Canton as *maa tai*, that is, typical *Eleocharis tuberosa* (Roxb.) Schultes. Loureiro's description of *Hippuris indica* apparently applies to the wild form of this species, as he describes the tubers as small and pilose; those of *maa tai* are smooth and from 2.5 to 4.5 cm in diameter. Loureiro quotes *Cyperus dulcis* Rumph. as a synonym of *Hippuris indica* Lour. It is to be noted that *Eleocharis dulcis* Trin. does not appear in Index Kewensis.

## FIMBRISTYLIS Vahl

FIMBRISTYLIS SETACEA Benth. in Hook. Lond. Journ. Bot. 2 (1843) 239.

Gramen polytrichum Rumph. Herb. Amb. 6: 17, t. 7, f. 1.

AMBOINA, Koesoekoesoe sereh, Robinson Pl. Rumph. Amb. 438, August 12, 1913, along roadsides, altitude about 250 meters.

The figure given by Rumphius presents a good habit sketch that might with almost equal propriety be referred to *Fimbristylis setacea* Benth., to *F. polytrichoides* R. Br., to *F. acuminata* Vahl, or to any similar tufted species with slender leafless stems and solitary terminal spikelets. As *Fimbristylis setacea* Benth. is the only species of this type represented in the Amboina collection, I have interpreted it as *Gramen polytrichum* Rumph. Linnaeus, through error, reduced it to *Eriocaulon setaceum* Linn., Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 880, followed by Loureiro, Fl. Cochinch. (1790) 60. Willdenow, Sp. Pl. 1 (1797) 295, referred it to *Scirpus polytrichoides* Retz.=*Fimbristylis polytrichoides* R. Br., which disposition of it has been followed by various authors. There is nothing in the Rumphian description to indicate to which of the species of *Fimbristylis* discussed above it can be referred; from the

habitat cited by Rumphius, the indications are that *Fimbristylis setacea* Benth., rather than *F. polytrichoides* R. Br., is the correct disposition of it; it is certainly not *Fimbristylis acuminata* Vahl.

#### GAHNIA Forster

**GAHNIA RAWACENSIS** (Kunth) Steud. Syn. Pl. Cyp. (1855) 164?

*Lamprocarya rawacensis* Kunth Enum. 2 (1837) 333.

*Carex culmaris* Rumph. Herb. Amb. 6: 21?

AMBOINA, Amahoesoesoe, *Robinson Pl. Rumph. Amb.* 434, September 18, 1913, on hillsides, altitude about 150 meters.

The identity of the specimen with either *Gahnia rawacensis* Steud. or *Carex culmaris* Rumph. is very doubtful. The specimens somewhat resemble *Gahnia tristis* Nees, but are very much smaller and differ in various details. They do not, however, agree entirely with the rather imperfect description of *Gahnia rawacensis* Steud., the type of which was from Rawak Island, in the Moluccas; it has been reduced, apparently erroneously, to *Gahnia aspera* Spreng. Hasskarl, *Neue Schlüssel* (1866) 155, refers the Rumphian plant to *Gahnia javanica* Z. & M. Doctor Robinson, who suggested the identity of the plant with *Carex culmaris*, states: "Identification considered very doubtful, but so must any identification be."

#### HYPOLYTRUM Richard

**HYPOLYTRUM LATIFOLIUM** Rich. ex Pers. Syn. 1 (1805) 70.

*Carex laevis minor* Rumph. Herb. Amb. 6: 21.

AMBOINA, Batoe gadjah, *Robinson Pl. Rumph. Amb.* 432, August 5, 1913, near streams, altitude about 150 meters.

This reduction of *Carex laevis minor* to *Hypolytrum latifolium* Rich. has not previously been suggested. Rumphius's description applies closely to the species as here interpreted. Hasskarl, *Neue Schlüssel* (1866) 155, has suggested that it might be a form of *Cyperus polystachyus* Rottb.=*Pycneus odoratus* Urb., but that reduction is an impossible one.

#### SCIRPIODENDRON Zippel

**SCIRPIODENDRON GHAERI** (Gaertn.) Merr. in Philip. Journ. Sci. 9 (1914) Bot. 268.

*Chionanthus ghaeri* Gaertn. Fruct. 1 (1781) 190, t. 29, f. a-e; Boerl. in Journ. Linn. Soc. Bot. 31 (1896) 246.

*Scirpiodendron costatum* Kurz in Journ. As. Soc. Beng. 38<sup>2</sup> (1869) 85.

*Scirpiodendron pandaniforme* Zipp. ex Kurz l. c.

*Scirpiodendron sulcatum* Miq. Ill. Fl. Archipel. Ind. (1871) 65, t. 28.

*Pandanus caricosus* Spreng. Syst. 3 (1826) 897 (type!); Kunth Enum. 3 (1841) 98, non *Pandanus caricosus* Kurz in Journ. Bot. 5 (1867) 100, t. 62, f. 1-3, nec Warb. in Engl. Pflanzenreich 3 (1900) 83.

*Pandanus caricosus* Rumph. Herb. Amb. 4: 154.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 437*, November 25, 1913, along margins of streams near the beach.

*Pandanus caricosus* Rumph. is unquestionably a *Scirpiodendron*, although the leaves, as described, are unusually long for *S. ghaeri* Merr. The description of the infructescence and fruit, however, is unquestionably *Scirpiodendron*: "Ejus fructus raro in conspectum venit, atque in peculiari progerminat petiolo, pedem circiter alto, & supra radicem elevato, qui foliis cingitur tribus, in triangulo positus, uti in Cypero." *Pandanus caricosus* Spreng. is based absolutely on the Rumphian description, and the species as described by him, after Rumphius, is repeated by various other authors. Kurz,\* however, described a true *Pandanus*, under the name *Pandanus caricosus*, which was accepted by Warburg† as a valid species. As Kurz's name is invalidated by *Pandanus caricosus* Spreng., I propose the new specific designation *Pandanus kurzii*, for *Pandanus caricosus* Kurz, non Spreng.

#### MAPANIA Aublet

MAPANIA MACROCEPHALA (Gaudich.) K. Sch. ex Warb. in Engl. Bot. Jahrb. 13 (1891) 265.

*Hypolytrum macrocephalum* Gaudich. in Freyc. Voy. Bot. (1826) 414.

*Lepironia macrocephala* Miq. Ill. Fl. Archipel. Ind. (1871) 64, t. 27.

*Carex laevis major* Rumph. Herb. Amb. 6: 21.

AMBOINA, Batoe gadjah, *Robinson Pl. Rumph. Amb. 430*, August 5, 1913, along streams, altitude about 150 meters.

Hasskarl, Neue Schlüssel (1866) 155, has suggested that *Carex laevis major* of Rumphius is *Pandanophyllum palustre* Hassk., but Rumphius's description does not agree, especially in the statement as to the stalk of the inflorescence bearing two or three long leaves. It is, with very little doubt, *Mapania macrocephala* K. Sch.

#### SCLERIA Bergius

SCLERIA LITHOSPERMA Sw. Prodr. (1788) 18.

*Carex amboinica* II minor Rumph. Herb. Amb. 6: 20.

AMBOINA, Wakeroe, *Robinson Pl. Rumph. Amb. 435*, near the seashore, October 17, 1913.

\* Journ. Bot. 5 (1867) 100, t. 62, f. 1-3.

† Engl. Pflanzenreich 3 (1900) 83.

The identity of *Carex amboinica minor* Rumph. with *Scleria lithosperma* Sw. is very probable. Hasskarl has suggested, Neue Schlüssel (1866) 155, that it is *Scleria trialata* Poir., a species originally described from Madagascar. The specimen from the Moluccas, determined by Brongniart, in Duperry's Voy. Bot. (1829) 165, and referred by Kunth with doubt to *Scleria trialata* Poir., is probably *Scleria bancana* Miq.

**SCLERIA BANCANA** Miq. Fl. Ind. Bat. Suppl. (1861) 602.

*Carex amboinica* I major Rumph. Herb. Amb. 6: 20, t. 8, f. 1?

AMBOINA, Gelala and Soja road, Robinson Pl. Rumph. Amb. 433, August, September, 1913, on barren, grassy hillsides.

The identification follows a suggestion made by Doctor Robinson, who considers this plant as probably representing the Rumphian species. It is to be noted, however, that Rumphius's figure and description of *Carex amboinica major* call for a plant with pseudovercillate leaves, while in *Scleria bancana* Miq. the leaves are all alternate and distant. It is suspected that the plant Rumphius intended is *Scleria sumatrensis* Retz., *S. scrobiculata* Nees, or some very closely allied form, such as *S. multifoliata* Boeckl. Historically the first reference to Rumphius is that by Linnaeus, in Stickman Herb. Amb. (1754) 25, where under t. 8 he includes, by error, with *Carex amboinica*, *Lithospermum amboinicum* and *Arundinella*; for the latter two t. 9 was intended, and the same error is repeated in Amoen. Acad. 4 (1759) 134. Burman f., Fl. Ind. (1768) 19, based his *Schoenus paniculatus* partly on *Carex amboinica* Rumph., but the type was a specimen from Java, and the species must be interpreted from the Javan specimen. It is supposed to include both *Scleria sumatrensis* Retz. and *S. alata* Thw. The Rumphian figure and description have been referred by other authors to *Scleria flagellum* Sw., *S. tessellata* Brongn., and *S. approximata* Hassk.

#### CYPERACEAE OF UNCERTAIN STATUS

**Cyperus rotundus** Rumph. Herb. Amb. 6: 4 quoad humilior, altior, gramen bufonum, et III inodorus.

The descriptions of these four forms manifestly pertain to the *Cyperaceae*, but the data given are too vague to warrant the definite reduction of them to any particular genus or species. For the most part, apparently, species of *Cyperus* and *Fimbristylis* are intended.

**Carex amboinica** III Rumph. Herb. Amb. 6: 20.

A coarse sedge from Bali, there known as *tallan tallan*; probably one of the large species of *Cyperus*. Hasskarl, Neue Schlüssel (1866) 155, thought that it might be *Rhynchospora aurea* Vahl=*R. corymbosa* (Linn.) Britt.



## PALMAE

The Amboina collections made by Doctor Robinson have thrown comparatively little light on the identity of the numerous species of palms described by Rumphius, for the reason that very few palms were secured by him. Probably in no other group of plants is there more confusion among those species based by later authors on Rumphius or more species of uncertain status than in this family. In the genus *Calamus* numerous species that were based wholly on the Rumphian descriptions and figures are quite unrecognizable; their positions within the genus and their relationships with other forms are quite undeterminable. In the genus *Metroxylon* it is impossible to determine, from material at present available, whether one somewhat polymorphous species or several closely allied ones are represented. In order definitely to settle many cases of uncertain nomenclature and to determine the true characters of many species that have been based wholly on Rumphius, a much more extensive botanical exploration of the Moluccas, especially of Amboina, is necessary, and in no group of plants is this more important than in the *Palmae*.

Beccari has recently given us critical and beautifully illustrated monographs of the genera *Calamus* and *Daemonorops*,\* yet of the fifteen species belonging in these two genera, described and for the most part figured by Rumphius, he was able definitely to recognize and to connect with botanical material but four species. Four, incidentally mentioned in the text, he justly states can in all probability never be recognized, but the others he considers to represent characteristic species, which will eventually be recognized when the Moluccas shall have been more thoroughly explored botanically.

Numerous questions of nomenclature cannot be determined from data at present available, and accordingly the following treatment of the palms described by Rumphius is distinctly unsatisfactory in many respects. Many of the more characteristic forms figured by him are readily recognizable, and their status is certain. Others must await the collection of additional material. Under the circumstances it has been considered best to give a critical enumeration of all the species, according to their definitely determined or their problematical positions. In certain cases new names are indicated, but few new combina-

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\* Ann. Bot. Gard. Calcutta 11 (1908) 1-518, t. 1-238; 12<sup>1</sup> (1911) 1-237, t. 1-109.

tions have been proposed in view of the uncertain status of some of the species.

I am under obligations to Doctor O. Beccari, Florence, Italy, for identifications of the palms actually collected by Doctor Robinson.

#### CORYPHA Linnaeus

**CORYPHA UTAN** Lam. Encycl. 2 (1786) 131 (type!).

*Borassus sylvestris* Giseke Prael. Ord. Nat. Pl. (1792) 86 (type!).

*Taliera sylvestris* Blume ex Schultes Syst. 7 (1830) 1307 (type!).

*Corypha sylvestris* Mart. Hist. Nat. Palm. 3 (1838) 233; Blume Rumphia 2 (1836) 59 (type!).

*Lontarus silvestris* Rumph. Herb. Amb. 1: 53, t. 11.

*Lontarus silvestris* Rumph. is the whole basis of *Corypha utan* Lam., which name should be maintained if the species proves to be a valid one. *Borassus sylvestris* Giseke, *Corypha sylvestris* Mart., and *Taliera sylvestris* Blume are exact synonyms, being, like *Corypha utan* Lam., based on Rumphius.

**CORYPHA GEBANGA** Blume Rumphia 2 (1836) 59, t. 97, 89, 105; Mart. Hist. Nat. Palm. 3 (1838) 233.

*Gembanga rotundifolia* Blume ex Nees in Flora 8 (1825) 580, 676.

*Taliera gembanga* Blume ex Schultes Syst. 7 (1830) 1307.

*Lontarus silvestris* s. *cabang* Rumph. Herb. Amb. 1: 55.

In this reduction I have followed Blume and Martius. In view of the uncertain status of Blume's species, no attempt is made to adjust the synonymy. It is manifestly very closely allied to, if not identical with, *Corypha elata* Roxb., and it may also prove to be the same as *Corypha utan* Lam.

**CORYPHA ELATA** Roxb. Hort. Beng. (1814) 25, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 176.

*Lontarus silvestris* s. *yhur e* Philippin. Rumph. Herb. Amb. 1: 54.

Among all the palms that occur in the Philippines that yield a sago-like edible fecula, Rumphius's discussion of this applies only to *Corypha* in "trunco tam crasso, ut vir eum brachiis complecti nequeat." *Corypha elata* Roxb. may prove to be identical with one or both of the preceding species. Hasskarl, Neue Schlüssel (1866) 12, quotes it as a possible synonym of *Borassus sylvestris* Gieseke, after Henschel, Vita Rumph. (1833) 140.

#### LICUALA Thunberg

**LICUALA RUMPHII** Blume Rumphia 2 (1836) 41, t. 89, f. 2.

*Corypha licuala* Lam. Encycl. 2 (1783) 131 (type!).

*Licuala arbor* Rumph. Herb. Amb. 1: 44, t. 9.

The status of this species, as distinct from *Licuala spinosa*

Wurmb, in Verh. Bat. Genoets. 2 (1780) 469, is doubtful, and it may properly be a synonym of Wurmb's species. Loureiro, Fl. Cochinch. (1790) 213, placed it under *Corypha pilearia* Lour., which is *Licuala pilearia* Blume, and perhaps the same as *Licuala spinosa* Wurmb. It is the whole basis of *Corypha licuala* Lam. and in part the basis of *Licuala rumphii* Blume. Murray, Giseke, Roxburgh, Willdenow, Poirét, Schultes, and other authors refer it to *Licuala spinosa* Thunb., in Vet. Akad. Nya Handl. (1782) 278, which is antedated by two years by *Licuala spinosa* Wurmb. The essential distinctive characters of *Licuala rumphii* Blume are very imperfectly known, and a critical revision of the genus may show that it is a synonym of *Licuala spinosa* Wurmb. The figure is poor, but it manifestly represents a *Licuala* very similar in appearance to the widely distributed *Licuala spinosa* Wurmb.

#### LIVISTONA R. Brown

**LIVISTONA ROTUNDIFOLIA** (Lam.) Mart. Hist. Nat. Palm. 3 (1838) 241.

*Corypha rotundifolia* Lam. Encycl. 2 (1786) 131 (type!).

*Saribus rotundifolius* Blume Rumphia 2 (1836) 49.

*Licuala rotundifolia* Blume ex Roem. & Schultes Syst. 7<sup>2</sup> (1830) 1305.

*Saribus* Rumph. Herb. Amb. 1: 42, t. 8.

This is one of the few Rumphian species considered by Linnaeus in the first edition of his Species Plantarum (1753), where he erroneously reduced it to *Corypha umbraculifera* Linn., page 1187, and later cited it under the same name in Stickman Herb. Amb. (1754) 6, Amoen. Acad. 4 (1759) 118, and Sp. Pl. ed. 2, (1763) 1657, in which he was followed by Giseke, Prael. Ord. Nat. Pl. (1792) 49. Louriero, Fl. Cochinch. (1790) 212, placed it under *Corypha saribus* Lour., taking his specific name from Rumphius. The species he actually described, however, is not the Amboina form, but is *Livistona cochinchinensis* Blume. *Saribus* Rumph. is the whole basis of *Corypha rotundifolia* Lam., which in turn typifies *Livistona rotundifolia* Mart.

*Arbor tsjang* Rumph., Herb. Amb. 1: 63, which is very imperfectly described, is perhaps a species of *Livistona*, as suggested by Hasskarl, Neue Schlüssel (1866) 12; it was from French Indo-China.

**LIVISTONA ? BISSULA** Mart. Hist. Nat. Palm. 3 (1838) 242 (type!).

*Licuala ? bissula* Miq. Fl. Ind. Bat. 3 (1855) 57 (type!).

*Bissula* Rumph. Herb. Amb. 1: 85.

The status of this species is entirely doubtful. It may be

neither a *Livistona* nor a *Licuala*; the description of the fruits is suggestive of *Pholidocarpus*. Rumphius's specimens were from Celebes, where the palm is known as *bissula* and *metsje*.

#### PHOLIDOCARPUS Blume

**PHOLIDOCARPUS IHUR** (Giseke) Blume *Rumphia* 3 (1837) 90 (type!).

*Borassus* ? *ihur* Giseke *Prael. Ord. Nat. Pl.* (1792) 87 (type!).

*Pholidocarpus rumphii* Meisn. ex Hassk. in *Abhandl. Naturf. Gesellsch. Halle* 9 (1866) 154 (type!).

*Lontarus silvestris altera* s. *ihur* Rumph. *Herb. Amb.* 1: 56, *t.* 12.

The Rumphian illustration and description typify *Borassus ihur* Giseke, *Pholidocarpus ihur* Blume, and *Pholidocarpus rumphii* Meisn.; the last does not appear in *Index Kewensis*.

#### BORASSUS Linnaeus

**BORASSUS FLABELLIFER** Linn. *Sp. Pl.* (1753) 1187.

*Borassus flabelliformis* Murr. *Syst.* (1774) 827.

*Lontarus domestica* Gaertn. *Fruct.* 1 (1788) 21, *t.* 8.

*Lontarus domestica* Rumph. *Herb. Amb.* 1: 45, *t.* 10.

This was one of the few Rumphian species considered by Linnaeus in the first edition of his *Species Plantarum* (1753), where, page 1187, he correctly reduced it to *Borassus flabellifer* Linn., the reduction being repeated in his later writings, *Stickman Herb. Amb.* (1754) 6, *Amoen. Acad.* 4 (1759) 118, *Sp. Pl. ed. 2* (1763) 1657, and generally accepted by all authors. Gaertner, *Fruct.* 1 (1788) 21, merely substituted the generic name *Lontarus* for the Linnean name *Borassus*, considering the species under the new name *Lontarus domestica* Gaertn.

#### LODOICEA Commerson

**LODOICEA MALDIVICA** (Gmel.) Pers. *Syn.* 2 (1807) 630.

*Cocos maldivica* Gmel. *Syst.* (1791) 569 (*maldioica*), ed. 2 (1796) 569.

*Borassus sonnerati* Giseke *Prael. Ord. Nat. Pl.* (1792) 86.

*Lodoicea callipyge* Comm. ex St. Hil. *Expos.* 1 (1805) 96.

*Lodoicea seychellarum* Labill. in *Ann. Mus. Paris* 9 (1807) 140, *t.* 13.

*Cocus maldivicus* Rumph. *Herb. Amb.* 6: 210, *t.* 81.

Rumphius figures only the fruit of this striking palm, and Gmelin's specific name, here adopted, is the oldest valid one for the species.

#### METROXYLON Rottboell

**METROXYLON SAGU** Rottb. in *Nye Samml. Dansk. Vidensk. Selsk. Skrift.* 2 (1783) 527.

*Sagus genuina* Giseke *Prael. Ord. Nat. Pl.* (1792) 94 (type!).

*Metroxylon sagus* Koenig in *Spreng. Syst.* 2 (1825) 138 (type!).

*Sagus rumphii* Willd. Sp. Pl. 4 (1805) 404 (type!).

*Metroxylon rumphii* Mart. Hist. Nat. Palm. 3 (1838) 213.

*Sagus inermis* Roxb. Hort. Beng. (1814) 68 (type!).

*Sagus genuina* Rumph. Herb. Amb. 1: 72, t. 17, 18.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 26, October 28, 1913, locally known as *sagu tuni*. The inflorescence and fruit from a felled trunk, the leaves from a neighboring palm. Doctor Beccari, who has examined the material, thinks that perhaps the fruits belong with *Metroxylon micracanthum* Mart.

The sago palm presents considerable variation, especially in the presence or absence of spines, and when spines are present, in their length. It is probable that altogether too many "species" have been proposed and that most of the plants described by Rumphius, on which later authors have based various binomials, are really but forms or varieties of a single species. No material is available, however, for purposes of comparison, and accordingly the various species that have been based on Rumphius's descriptions are listed below with their proper synonyms. The Rumphian illustrations and descriptions, cited above, have been quoted under all of the synonyms above listed, and most of them have been based solely on Rumphius. I have here adopted what is manifestly the oldest specific name for the species.

**METROXYLON MICRACANTHUM** Mart. Hist. Nat. Palm. 3 (1838) 215 (type!).

*Sagus micracanthus* Blume Rumphia 2 (1836) 153 (type!).

*Sagus genuina* II Rumph. Herb. Amb. 1: 75.

This is probably merely a form of *Metroxylon sagu* Rottb., and it is possible that the fruit and spadices of the specimen cited under the above species belong here.

**METROXYLON LONGISPINUM** Mart. Hist. Nat. Palm. 3 (1838) 215 (type!).

*Sagus longispina* Blume Rumphia 2 (1836) 154 (type!).

*Sagus genuina* Giseke var. *longispina* Giseke Prael. Ord. Nat. Pl. (1792) 94 (type!).

*Sagus longispina* Rumph. Herb. Amb. 1: 75.

This is apparently merely a form or variety of the common sago palm with long spines. However, no material is available to warrant its definite reduction. The native names cited by Rumphius are *lapia macanaru*, *lapia macanalo*, and *lapia macanulun*. It was reduced by Poiret, in Lam. Encycl. 6 (1804) 394, to *Sagus farinifera* (Gaertn.) Lam., which is certainly not the correct disposition of it.

**METROXYLON INERME** Mart. Hist. Nat. Palm. 3 (1838) 215.*Sagus laevis* Blume Rumphia 2 (1836) 147.*Sagus laevis* Rumph. Herb. Amb. 1: 76.

Like the preceding this is probably only a form or variety of the common sago palm. It has been referred by various authors to *Metroxylon laeve* Mart., to *Sagus spinosus* Roxb., to *Metroxylon hermaphroditum* Hassk., and to *Metroxylon sagus* Rottb., besides the synonyms cited above. Native names cited by Rumphius are *lapia molat*, *sagu parampuan*, and *bulun*.

**METROXYLON SYLVESTRE** Mart. Hist. Nat. Palm. 3 (1838) 215 (type!).*Sagus genuina* Giseke var. *silvestris* Giseke Prael. Ord. Nat. Pl. (1792) 94 (type!).*Sagus silvestris* Rumph. Herb. Amb. 1: 75.

AMBOINA, Paso, *Robinson Pl.* Rumph. Amb. 27, October 29, 1913, locally known as *sagu ihur*.

The specimen has fairly long spines on its petioles, undoubtedly represents *Sagus silvestris* Rumph., and hence *Metroxylon sylvestre* Mart., but in all essential characters it appears to be identical with *Metroxylon sagu* Rottb.

**PIGAFETTIA** Beccari**PIGAFETTIA FILIFERA** (Giseke) comb. nov.*Sagus filifera* Giseke Prael. Ord. Nat. Pl. (1792) 94 (type!).*Sagus filaris* Blume Rumphia 2 (1836) 154 (type!).*Metroxylon filare* Mart. Hist. Nat. Palm. 3 (1838) 215 (type!).*Pigafettia filaris* Becc. Malesia 1 (1877) 90, in obs.*Sagus filaris* Rumph. Herb. Amb. 1: 84, t. 19.

The species is still known only from the Rumphian description and figure, which are the type of *Pigafettia filifera* and of all the synonyms cited above.

**PIGAFETTIA ELATA** (Reinw.) H. Wendl. in Kerch. Palm. (1878) 253.*Sagus elata* Reinw. ex Blume Rumphia 2 (1836) 156, t. 128, f. 1.*Metroxylon elatum* Mart. Hist. Nat. Palm. 3 (1838) 216.*Wanga* Rumph. Herb. Amb. 1: 85.

*Wanga*, a Celebesian palm, is very briefly described by Rumphius. *Pigafettia elata* H. Wendl. seems to be the correct disposition of it.

**ZALACCA** Reinwardt**ZALACCA EDULIS** Reinw. ex Roem. & Schultes Syst. 7<sup>2</sup> (1830) 1334.*Salacca edulis* Reinw. Syll. Ratisb. 2 (1828) 3.*Salakka edulis* Reinw. ex Blume Cat. Gew. Buitenz. (1823) 112.*Calamus zalacca* Gaertn. Fruct. 2 (1791) 267, t. 139.

*Zalacca blumeana* Mart. Hist. Nat. Palm. 3 (1836-50) 201, t. 123, t. 159, f. 3.

*Zalacca* Rumph. Herb. Amb. 5: 113, t. 57, f. 2.

AMBOINA, Koesoekoesoe sereh and Mahija, *Robinson Pl. Rumph. Amb.* 25, August 23, 1913, locally known as *salak*.

Linnaeus, Sp. Pl. ed. 2 (1762) 463, originally reduced this through error to *Calamus rotang* Linn. Gaertner, Fruct. 2 (1791) 267, cites it under *Calamus zalacca* Gaertn.=*Zalacca edulis* Reinw. Most authors have cited it under *Zalacca* (*Salacca*) *edulis* Reinw., but Martius placed it under *Zalacca blumeana* Mart., which is merely a synonym of Reinwardt's species.

### CALAMUS Linnaeus

**CALAMUS ALBUS** Pers. Syn. 1 (1805) 383 (pp. excl. syn. Lour.) (type!); Beccari in Ann. Bot. Gard. Calcutta 11 (1908) 444, t. 199.

*Palmijuncus albus* Rumph. Herb. Amb. 5: 102, t. 53.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb.* 24, October 14, 1913, in forests, altitude 200 meters; locally known as *rotang tuni*.

The specimen cited above has been identified with *Calamus albus* Pers. by Doctor Beccari. *Palmijuncus albus* Rumph. has been reduced by various authors to *Calamus rotang* Linn. and to *Calamus rudentum* Lour., most of the references in literature being to the latter species. Loureiro made the reduction to *Calamus rudentum* Lour. in the original description of that species, but the type was a Cochin-China specimen, and the species is certainly not the same as the Amboina one. Strictly following rules of nomenclature, the name *Calamus albus* Pers. belongs with *Calamus rudentum* Lour., as a synonym, but I have here followed Beccari in applying it to the Amboina plant.

**CALAMUS GRAMINOSUS** Blume Rumphia 3 (1837) 31 (type!).

*Palmijuncus albus graminosus* Rumph. Herb. Amb. 5: 104.

A species known only from Rumphius's description; see Beccari in Ann. Bot. Gard. Calcutta 11 (1908) 499. It has been reduced by various authors to *Calamus rotang* Linn., *C. rudentum* Lour., and *C. adpersus* Blume, but is manifestly none of these. It may be a form of *Calamus albus* Pers.

**CALAMUS RUMPHII** Blume Rumphia 3 (1837) 38 (type!).

*Daemonorops rumphii* Mart. Hist. Nat. Palm. 3 (1850) 331.

*Palmijuncus verus angustifolius* Rumph. Herb. Amb. 5: 105, t. 54, f. 2.

A species known only from Rumphius's figure and description; see Beccari, in Ann. Bot. Gard. Calcutta 11 (1908) 400, who considers it to be allied to *Calamus palustris* Griff. It has been erroneously reduced by various authors to *Calamus rotang* Linn.,

to *C. platyacanthos* Mart., to *Daemonorops elongatus* Blume, and to *D. longipes* Griff.

**CALAMUS PISICARPUS** Blume Rumphia 3 (1837) 31 (type!).

*Palmijuncus verus latifolius* Rumph. Herb. Amb. 5: 106, t. 54, f. 1.

This species is known only from Rumphius's figure and description, but is considered by Beccari, Ann. Bot. Gard. Calcutta 11 (1908) 460, to represent a very distinct species allied to *Calamus aruensis* Becc. and *C. holrungii* Becc. By various authors it has been erroneously reduced to *Calamus rotang* Linn., to *C. verus* Lour., to *C. oblongus* Reinw., and to *C. strictus* Blume. Manifestly *Calamus verus* Lour., described from Cochin-China specimens, is a species entirely different from the Amboina plant, although Loureiro cites *Palmijuncus verus* Rumph. as a synonym of his species and takes his specific name from Rumphius.

**CALAMUS VIMINALIS** Willd. Sp. Pl. 2 (1799) 203 (type!).

*Calamus litoralis* Blume Rumphia 3 (1837) 43.

*Palmijuncus viminalis* Rumph. Herb. Amb. 5: 108, t. 55, f. 2.

I agree with Beccari, Ann. Bot. Gard. Calcutta 11 (1908) 203, 497, that the Rumphian illustration pertains to the Javan species, not to the form described from Buru (*Calamus buroensis* Mart.). *Palmijuncus viminalis* Rumph. typifies *Calamus viminalis* Willd., and it has been erroneously reduced by various authors to *Calamus rotang* Linn., to *C. fasciculatus* Roxb., and to *C. buroensis* Mart.

**CALAMUS BUROENSIS** Mart. Hist. Nat. Palm. 3 (1850) 336 (type!).

*Calamus viminalis* e Burone Rumph. Herb. Amb. 5: 109 (non t. 55, f. 2).

This is a species of doubtful status, known only from Rumphius's description; see Beccari in Ann. Bot. Gard. Calcutta 11 (1908) 497.

**CALAMUS EQUESTRIS** Willd. Sp. Pl. 2 (1799) 204 (type!).

*Palmijuncus equestris* Rumph. Herb. Amb. 5: 110, t. 56.

A species known only from Rumphius's figure and description; see Beccari in Ann. Bot. Gard. Calcutta 11 (1908) 358. It has been erroneously reduced by various authors to *Calamus rotang* Linn. and to *C. dioicus* Lour. Willdenow also refers here t. 57, f. 1, which Beccari places under *Calamus cawa* Blume.

**CALAMUS CAWA** Blume Rumphia 3 (1837) 31, 62 (type!).

*Palmijuncus equestris* s. *rottang cawa* Rumph. Herb. Amb. 5: 112, t. 57, f. 1.

A species known only from Rumphius's description; see Beccari in Ann. Bot. Gard. Calcutta 11 (1908) 358.



cari in Ann. Bot. Gard. Calcutta 11 (1908) 357. It has been confused by various authors with *Calamus equestris* Willd., with *C. javensis* Blume, and with *C. maritimus* Blume.

**CALAMUS ACIDUS** Becc. in Ann. Bot. Gard. Calcutta 11 (1908) 496 (type!).

*Palmijuncus acidus* Rumph. Herb. Amb. 6: 119, t. 58, f. 2, E.

A very imperfectly known species, known only from Rumphius's description and figure. By various authors it has been erroneously reduced to *Calamus barbatus* Blume; to *Calamus oblongus* "Linn.," which does not exist [Hasskarl, Neue Schlüssel (1866) 102]; and to *Daemonorops barbatus* Mart.

**CALAMUS** sp.

*Palmijuncus aracanicus* Rumph. Herb. Amb. 5: 107.

A form of entirely uncertain status; it was thought by Schultes to be referable to *Calamus oblongus* Reinw., and by Kunth to be *Calamus latifolius* Roxb.

**CALAMUS** sp.?

*Palmijuncus viminalis* s. ua huay Rumph. Herb. Amb. 5: 109.

Entirely indeterminable from any data given by Rumphius; it may not be a *Calamus* at all.

#### DAEMONOROPS Blume

**DAEMONOROPS CALAPPARIUS** Blume Rumphia 3 (1837) 7 (type!).

*Calamus calapparius* Mart. Hist. Nat. Palm. 3 (1850) 331.

*Calamus amboinensis* Miq. in Verh. Kon. Akad. Wetensch. 11 (1868) 20.

*Palmijuncus calapparius* Rumph. Herb. Amb. 5: 98, t. 51.

AMBOINA, Lateri, Robinson Pl. Rumph. Amb. 23, September 5, 1913, in forests, altitude about 250 meters, locally known as *rotang bulu rusa*.

The identification of this specimen with both *Palmijuncus calapparius* Rumph. and *Daemonorops calapparius* Blume has been made by Doctor Beccari, who has given a detailed description of the species from Amboina specimens.\* Linnaeus originally reduced this to *Calamus rotang* Linn., Sp. Pl. ed. 2 (1762) 463, in which he was followed by numerous authors. Loureiro, Fl. Cochinch. (1790) 209, reduced it to *Calamus petraeus* Lour., but the Cochinchina species actually described by Loureiro is entirely different from the Amboina plant, and Beccari thinks it probably a species of *Korthalsia* or *Plectocomia*.

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\* Ann. Jard. Bot. Calcutta 12<sup>1</sup> (1911) 164.

**DAEMONOROPS NIGER** (Willd.) Blume Rumphia 3 (1827) 5 (type!).

*Calamus niger* Willd. Sp. Pl. 2 (1799) 203 (type!).

*Palmijuncus niger* Rumph. Herb. Amb. 5: 101, t. 52.

A species known only from the Rumphian figure and description; see Beccari in Ann. Bot. Gard. Calcutta 12<sup>1</sup> (1911) 104. *Palmijuncus niger* Rumph. has been reduced by various authors to *Calamus rotang* Linn., to *Calamus rudentum* Lour., and to *Daemonorops melanochaetes* Blume, but these reductions are manifestly erroneous.

**DAEMONOROPS PALEMBANICUS** Blume Rumphia 3 (1837) 20.

*Palmijuncus palimbanicus* Rumph. Herb. Amb. 5: 107.

The reduction follows Blume, which is probably the correct disposition of Rumphius's species.

**DAEMONOROPS DRACO** (Willd.) Blume Rumphia 3 (1837) 8.

*Calamus draco* Willd. Sp. Pl. 2 (1799) 203 (type!).

*Palmijuncus draco* Rumph. Herb. Amb. 5: 114, t. 58, f. A, B.

Regarding this species, Beccari, Ann. Bot. Gard. Calcutta 12<sup>1</sup> (1911) 106, states: "Only the *Palmijuncus Draco* growing at Palembang, described and figured by Rumphius (l. c.) can be considered as the true *D. Draco*," and again: "The canes described by Rumphius \* \* \* figured in plate 58 f. D \* \* \* and which is there attributed to *Palmijuncus Draco*, are almost certainly those of *Calamus Scipionum*."

**DAEMONOROPS RUBER** Blume Rumphia 3 (1837) 6.

*Daemonorops accedens* Blume l. c. 13.

*Palmijuncus draco e* Bantam Rumph. Herb. Amb. 5: 116.

The Javan material included by Rumphius in his description of *Palmijuncus draco* was referred by Blume to *Daemonorops accedens* Blume, which is a synonym of *D. ruber* Blume; see Beccari in Ann. Bot. Gard. Calcutta 12<sup>1</sup> (1911) 114.

#### CARYOTA Linnaeus

**CARYOTA RUMPHIANA** Mart. Hist. Nat. Palm. 3 (1839) 195 (type!).

*Saguaster major* Rumph. Herb. Amb. 1: 64, t. 14.

The illustration is an excellent habit sketch of this sufficiently well-known palm, which extends from the Philippines to the Moluccas and Java. *Saguaster major* Rumph. is the whole basis of *Caryota rumphiana* Mart., from which *Caryota maxima* Blume does not appear to be distinct. Linnaeus originally reduced the Rumphian species to the Indian *Caryota urens* Linn., in Stickman Herb. Amb. (1754) 6, Amoen. Acad. 4 (1759) 118, and

it is very generally cited as a synonym of the Linnean species in the early botanical literature. The species is, however, entirely distinct from *Caryota urens* Linn.

#### ARENGA \* LaBillardière

##### ARENGA PINNATA (Wurmb) comb. nov.

- Saguerus pinnatus* Wurmb in Verh. Bat. Genoots. 1 (1779) 351.  
*Borassus gomutus* Lour. Fl. Cochinch. (1790) 618.  
*Arenga saccharifera* Labill. in Mém. Inst. Paris 4 (1801) 209.  
*Gomutus rumphii* Corr. in Ann. Mus. Paris 9 (1807) 288.  
*Saguerus rumphii* Roxb. Hort. Beng. (1814) 68 (type!).  
*Saguerus saccharifer* Blume Rumphia 2 (1836) 128.  
*Gomutus saccharifer* Spreng. Syst. 2 (1825) 624.  
*Arenga gamuto* Merr. in Philip. Journ. Sci. 9 (1914) Bot. 63.  
*Palma indica vinaria* II Rumph. Herb. Amb. 1: 57, t. 13.

The common and well-known sugar palm is not represented in our Amboina collections. The figure and the description given by Rumphius unmistakably represent the form commonly known as *Arenga saccharifera* Labill. The illustration has been cited under *Borassus gomutus* Lour., *Saguerus rumphii* Roxb., *Saguerus saccharifer* Blume, and *Arenga saccharifera* Labill., all synonyms of *Arenga pinnata* (Wurmb) Merr.; while Giseke, Prael. Ord. Nat. Pl. (1792) 90, erroneously reduced it to *Chamaerops humilis* Linn. Wurmb's specific name is the oldest valid one for the species. *Arenga gamuto* Merr. was adopted on the assumption that "*Saguerus gamuto* Houtt." was published as indicated in Index Kewensis and in the synonymy of *Arenga saccharifera* Labill. as given by some authors; no such name appears in Houttuyn's work.

#### CALYPTROCALYX Blume

##### CALYPTROCALYX SPICATUS (Lam.) Blume Rumphia 2 (1836) 103, t. 102, f. 2, 118, 161.

*Areca spicata* Lam. Encycl. 1 (1783) 241 (type!).

*Pinanga silvestris globosa* Rumph. Herb. Amb. 1: 38, t. 5, f. 1, A.

This species is not represented in our Amboina collections, but it has been minutely described and figured by Blume from Amboina specimens. The Rumphian description and crude figure are the whole basis of *Areca spicata* Lam. Gaertner, Fruct. 1 (1788) 24, referred it to *Euterpe globosa* Gaertn., in which he was followed by Giseke, Prael. Ord. Nat. Pl. (1792) 92, but the fruit figured by Gaertner is not that of *Calyptrocalyx spicatus* Blume. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866)

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\* Retained name, Vienna Code; *Saguerus* Adans. (1763) is older.

10, thought that it was a species of *Iguanura*, while by other authors it has been placed as an undetermined species of *Areca* and of *Pinanga*.

#### DRYMOPHLOEUS Zippel

**DRYMOPHLOEUS OLIVAEFORMIS** (Giseke) Mart. Hist. Nat. Palm. 3 (1849) 314.

*Areca olivaeformis* Giseke Prael. Ord. Nat. Pl. (1792) 79 (type!).

*Harina rumphii* Mart. Hist. Nat. Palm. 189, ex Kunth. Enum. 3 (1841) 194.

*Seaforthia olivaeformis* Mart. Hist. Nat. Palm. 3 (1849) 314.

*Ptychosperma rumphii* Blume Rumphia 2 (1836) 119.

*Saguaster minor* Rumph. Herb. Amb. 1: 67, t. 15.

AMBOINA, Lateri and Gelala, *Robinson Pl. Rumph. Amb.* 21, 22, August and September, 1913, in ravines and in forests, altitude 20 to 200 meters, locally known as *pinang utan*.

*Saguaster minor* Rumph. is the basis of *Areca olivaeformis* Giseke, this supplying the oldest valid specific name. Hamilton, Mem. Wern. Soc. 5 (1826) 316, discusses it under *Harina caryotoides* Ham., which is described from Indian specimens, but he does not reduce *Saguaster minor* to this species.

**DRYMOPHLOEUS APPENDICULATUS** Becc. Malesia 1 (1877) 46.

*Areca gracilis* Giseke Prael. Ord. Nat. Pl. (1792) 80 (type!).

*Ptychosperma appendiculata* Blume Rumphia 2 (1836) 122, t. 84, 119.

*Seaforthia jaculatoria* Mart. Hist. Nat. Palm. 3 (1849) 314 (type!).

*Drymophloeus jaculatorius* Mart. Hist. Nat. Palm. 3 (1849) 314 (type!).

*Sargile* Rumph. Herb. Amb. 1: 68.

*Areca gracilis* Giseke was based wholly on Rumphius's description of *Sargile*. Beccari, Malesia 1 (1877) 46, has excluded it from the synonymy of *Drymophloeus appendiculatus* (Blume) Becc., with all other synonyms based on Rumphius, because of the fact that Rumphius included in the description more than one species, and because he based his description largely on data supplied to him by the natives. Beccari, op. cit. 98, refers "*Saguaster minor ex Gilolo et Nova-Guinea*," i. e., *Sargile* Rumph. p. p., to *Drymophloeus jaculatorius* Mart., a species of doubtful status.

**DRYMOPHLOEUS** sp.

*Areca vaginata* Giseke Prael. Ord. Nat. Pl. (1792) 80 (type!).

*Sargile minor* II Rumph. Herb. Amb. 1: 68.

The form described in the last paragraph of chapter fifteen was made the type of *Areca vaginata* by Giseke. It may prove to be a synonym of the preceding species, but its status is now entirely doubtful.

**DRYMOPHLOEUS ? sp.**

*Areca humilis* Willd. Sp. Pl. 4 (1805) 595 (type!).

*Seaforthia saxatilis* Blume ex Mart. Hist. Nat. Palm. 3 (1838) 186 (type!).

*Ptychosperma saxatilis* Blume Rumphia 2 (1836) 121 (type!).

*Pinanga silvestris saxatilis* Rumph. Herb. Amb. 1: 42, t. 7.

This species is not represented in our Amboina collections; and, although it has been placed in several different genera, its proper place is still uncertain. Loureiro, Fl. Cochinch. (1790) 619, discusses it under *Borassus caudata* Lour., but does not definitely refer it to this species. The Rumphian figure and description are the whole basis of *Areca humilis* Willd., which thus supplies the oldest specific name for the species when once its proper genus is determined. It is also the whole basis of *Ptychosperma saxatilis* Blume and of *Seaforthia saxatilis* Blume. "*Areca saxatilis* Burm.," Fl. Ind. (1768) 42, quoted by Miquel and listed in Index Kewensis, does not appear in Burman's work. Beccari, Malesia 1 (1877) 47, excludes this from *Drymophloeus*, but make no suggestion as to its proper disposition.

**ACTINORHYTIS H. Wendland and Drude**

**ACTINORHYTIS CALAPPARIA** (Blume) H. Wendl. & Drude in Linnaea 39 (1875) 184.

*Areca calapparia* Blume Rumphia 2 (1836) 70, t. 100, f. 2.

*Seaforthia calapparia* Mart. Hist. Nat. Palm. 3 (1849) 313.

*Ptychosperma ? calapparia* Miq. Fl. Ind. Bat. 3 (1855) 20.

*Pinanga calapparia* Rumph. Herb. Amb. 1: 28.

This species is not represented in our Amboina collections. The reduction made by Blume and followed by Miquel and by Martius is apparently the correct disposition of *Pinanga calapparia* Rumph.

**MISCHOPHLOEUS Scheffer**

**MISCHOPHLOEUS VESTIARIA** (Giseke) comb. nov.

*Areca vestiaria* Giseke Prael. Ord. Nat. Pl. (1792) 78 (type!).

*Seaforthia vestiaria* Mart. Hist. Nat. Palm. 3 (1849) 313 (type!).

*Ptychosperma vestiaria* Miq. Fl. Ind. Bat. 3 (1855) 31 (type!).

*Ptychosperma paniculata* Miq. in Verh. Kon. Akad. Wetensch. 11 (1868) 3.

*Areca paniculata* Scheff. in Naturk. Tijdschr. Ned. Ind. 32 (1873) 168.

*Mischophloeus paniculata* Scheff. in Ann. Jard. Bot. Buitenz. 1 (1876) 152.

*Pinanga silvestris e Buro* Rumph. Herb. Amb. 1: 41.

I have here adopted what is apparently the oldest specific name for this species, as *Areca vestiaria* Giseke was based wholly

on Rumphius's description, as were *Seaforthia vestiaria* Mart. and *Ptychosperma vestiaria* Miq. There seems to be no doubt that *Mischophloeus paniculata* (Miq.) Scheff. is the same species as the plant Rumphius described.

#### PINANGA Blume

##### PINANGA PUNICEA (Blume) comb. nov.

*Areca punicea* Blume Rumphia 2 (1826) 72 (type!).

*Seaforthia rumphiana* Mart. Hist. Nat. Palm. 3 (1849) 314 (type!).

*Drymophloeus rumphianus* Mart. Hist. Nat. Palm. 3 (1849) 314 (type!).

*Ptychosperma punicea* Miq. Fl. Ind. Bat. 3 (1855) 31 (type!).

*Pinanga ternatensis* Scheff. in Ann. Jard. Bot. Buitenz. 1 (1876) 149.

*Pinanga silvestris glandiformis* II Rumph. Herb. Amb. 1: 39.

*Areca punicea* Blume is based wholly on Rumphius's description of *Pinanga silvestris glandiformis* II, as are the brief descriptions of *Drymophloeus rumphianus* Mart. (*Seaforthia rumphiana* Mart.) and *Ptychosperma punicea* Miq. The species is undoubtedly a *Pinanga* and is probably the species described by Scheffer as *Pinanga ternatensis*. I have here adopted Blume's specific name, it being the oldest valid one. *Sarasuac* Camell, cited by Blume as a synonym of *Areca punicea* Blume, Rumphia 2 (1836) 73, is *Heterospathe elata* Scheff., a species originally described from Amboina material, and one that I cannot connect with any form described by Rumphius.

##### PINANGA GLOBULIFERA (Lam.) comb. nov.

*Areca globulifera* Lam. Encycl. 1 (1783) 241 (type!).

*Areca oryzaeformis* Giseke Prael. Ord. Nat. Pl. (1792) 76 (type!).

*Pinanga silvestris oryzaeformis* Rumph. Herb. Amb. 1: 40, t. 5, f. 2, B, C, D.

Nothing resembling the Rumphian species is represented in our Amboina collections, although the figure apparently represents a species of *Pinanga*. *Pinanga silvestris oryzaeformis* Rumph. is the whole basis of *Areca globulifera* Lam., which has been reduced to *Pinanga kuhlii* Blume, and which, if correctly placed, supplies a much older specific name for that species. Loureiro, Fl. Cochinch. (1790) 568, reduced the Rumphian plant to *Areca sylvestris* Lour., but the Cochinchina plant that he actually described is certainly not the same as the one Rumphius described and figured. Gaertner, Fruct. 1 (1788) 20, referred it to *Areca oryzaeformis* Gaertn., and the fruit he figured is probably that of *Pinanga kuhlii* Blume. *Seaforthia oryzaeformis* Mart., Hist. Nat. Palm. 3 (1839) 185, is merely a transfer

of *Areca oryzaeformis* Gaertn., to be typified by the plant Gaertner actually figured rather than by the Rumphian synonym he cites and from which he took the specific name.

#### ARECA Linnaeus

**ARECA CATECHU** Linn. Sp. Pl. (1753) 1189 (err. *cathecu*).

*Pinanga* (incl. II *alba* et III *nigra*) Rumph. Herb. Amb. 1: 26, *t.* 4.

The common betel-nut palm is not represented in our Amboina collections. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 6, Amoen. Acad. 4 (1759) 118, which has been accepted by all authors, as it is manifestly the correct disposition of the form figured. Under this species Rumphius described four forms: namely, I *Pinanga calapparia*, which is apparently *Actinorhytis calapparia* H. Wendl. & Drude; II *Pinanga alba* and III *Pinanga nigra*, which are manifestly *Areca catechu* Linn.; and IV (unnamed), which I cannot place from the imperfect description given by him.

**ARECA GLANDIFORMIS** Lam. Encycl. 1 (1783) 241 (type!).

*Pinanga silvestris glandiformis* II Rumph. Herb. Amb. 1: 38, *t.* 6.

The Rumphian figure and description are the whole basis of *Areca glandiformis* Lam. It has been minutely described and figured by Blume, Rumphia 2 (1836) 73, *t.* 100, from Moluccan material.

#### COCOS Linnaeus

**COCOS NUCIFERA** Linn. Sp. Pl. (1753) 1188.

*Palma indica nucifera major s. calappa* Rumph. Herb. Amb. 1: 1, 10, 11, 12, *tt.* 1-3.

Rumphius gives an extensive treatise on the coconut. The illustrations present a habit sketch, infructescence and inflorescence, details of the structure of the fruit, including germination, and *t.* 3 an abnormal form of the palm. He characterizes thirteen forms, most of which are referred by Blume, Miquel, and Hasskarl to various named varieties of *Cocos nucifera* Linn. The reduction of the illustrations was made by Linnaeus, in Stickman Herb. Amb. (1754) 6, Amoen. Acad. 4 (1759) 118, which is manifestly the correct disposition of them, and which has been accepted by all authors. While many distinct forms and varieties of the coconut occur, a clear understanding of them and their relationships is possible only through critical and long-continued field work, so that little is to be gained in attempting to reduce the numerous Rumphian forms to named and very imperfectly described varieties.

## NIPA (NYPA) Wurmb

**NIPA (NYPA) FRUTICANS** Wurmb Verh. Bat. Genoots. 1 (1779) 350.  
*Nypa* Rumph. Herb. Amb. 1: 69, t. 16.

The illustration is an excellent one of the common nipa palm, and *Nypa* was reduced by Wurmb in the original publication of *Nipa (Nypa) fruticans* Wurmb. This is manifestly the correct disposition of it and has been accepted by all authors, although commonly appearing in literature as *Nipa fruticans* Thunb.

## PALMAE OF UNCERTAIN STATUS

I am unable satisfactorily to determine the status of the few forms described by Rumphius immediately following *Cocus maldivicus*. They may or may not be the seeds or fruits of palms. These doubtful forms are as follows:

**Compar mangae** Rumph. Herb. Amb. 6: 216, t. 82, f. 1.

**Cocus maldivicus minor** Rumph. Herb. Amb. 6: 218, t. 82, f. 2, 3.

**Cocus melindanus verus** Rumph. Herb. Amb. 6: 219, t. 82, f. 4.

**Calapput laut** Rumph. Herb. Amb. 6: 219.

## ARACEAE

## POTHOS Linnaeus

**POTHOS RUMPHII** Schott Melet. 1 (1832) 21.

*Scindapsus rumphii* Presl Epim. (1851) 241.

**Adpendix porcellanica** Rumph. Herb. Amb. 5: 485, t. 182, f. 1.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 116, 117*, October, 1913, on trees at low altitudes, locally known as *tapinawa* and *tapinawa puti*.

The Rumphian figure is cited by Presl, under *Scindapsus rumphii* Presl, and presumably is cited by Schott in the original publication of the species (not seen by me). The species is a very characteristic and strongly marked one, the specimens cited above agreeing well with the Rumphian figure and description and with *Pothos rumphii* Schott as currently interpreted.

**POTHOS LONGIFOLIUS** Presl Epim. (1851) 242.

**Adpendix duplo folio** Rumph. Herb. Amb. 5: 490, t. 184, f. 1-3.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb. 118*, November, 1913, on trees, altitude about 50 meters.

Linnaeus originally reduced *Adpendix duplo folio* Rumph. to *Pothos scandens* Linn., which is very closely allied to *Pothos longifolius* Presl, and extends from India to Indo-China, Java, and Borneo. *Pothos longifolius* Presl is known from the Philippines, Sumatra, Java, and the Moluccas. The original reduc-



tion was made in Stickman, Herb. Amb. (1754) 25, Amoen. Acad. 4 (1759) 133, Syst. ed. 10 (1759) 1252, Sp. Pl. ed. 2 (1763) 1374, which was followed by most of the early authors. Loureiro, Fl. Cochinch. (1790) 212, placed it under *Flagellaria repens* Lour.=*Pothos loureirii* Hook. & Arn. Hasskarl, Neue Schlüssel (1866) 150, has interpreted the three forms described and figured by Rumphius as follows: I major=*Scindapsus officinalis* Schott, most certainly wrong; II minor=*Pothos roxburghii* DeVriese with question, but most certainly wrong, as the species is known only from India; and III=*P. roxburghii* DeVriese, with doubt. I can see no valid reason for considering that more than a single species is represented, and that is *Pothos longifolius* Presl.

**POTHOS LATIFOLIUS** Linn. in Stickman Herb. Amb. (1754) 25, Amoen. Acad. 4 (1754) 133, Syst. ed. 10 (1759) 1252 (type!).

*Pothos tener* Schott Aroid. 1 (1853) 24 (type!).

*Scindapsus tener* Presl Epim. (1851) 241.

*Pothos gracilis* Roxb. Fl. Ind. ed. 2, 1 (1832) 433.

**Adpendix arborum** Rumph. Herb. Amb. 5: 483, t. 181, f. 1, 2.

This is not represented in our Amboina collections and is a species of doubtful status. *Pothos latifolius* Linn. was based wholly on Rumphius's description and figure, the original description being as follows: "181. Adpendix arborum=*Pothos latifolius*, foliis ovatis, petiolo latoribus." Thus Linnaeus included both figures 1 and 2, that is, the forms indicated by Rumphius as *parvifolia* and *media*. To me they both appear to represent the same species, one in, or immediately following, anthesis; the other in fruit. *Pothos tener* Schott was based wholly on *Adpendix arborum* I Rumph. Herb. Amb. 5: 483, t. 181, f. 1; and, if I am correct in my surmise that but a single species is represented by the two figures, it becomes a synonym of *Pothos latifolius* Linn. Engler considers that *Pothos tener* Schott is apparently the same as the Bornean *Pothos barberianus* Schott. *Pothos gracilis* Roxb. was described from specimens grown in Calcutta, originating in Amboina, and is probably a synonym of *Pothos latifolius* Linn.; Roxburgh states that it had a great resemblance to *Adpendix arborum* as figured by Rumphius. It is not, however, mentioned in the latest monograph of the group, Engl. Pflanzenreich 21 (1905) 21-44, and is quite certainly not the Penang and Bornean form described under the name *Pothos gracilis* Roxb. by Engler in DC. Monog. Phan. 2 (1879) 91.

## SCINDAPSUS Schott

**SCINDAPSUS MARANTIFOLIUS** Miq. Fl. Ind. Bat. 3 (1857) 187.

*Cuscuaria marantifolia* Schott Gen. Aroid. (1858) t. 80.

*Cuscuaria rumphii* Schott in Ann. Mus. Bot. Lugd. Bat. 1 (1863) 130.

*Scindapsus cannaeformis* Engl. in Bull. Soc. Tosc. Ort. 4 (1879) 271.

*Aglaonema cuscuaria* Miq. Fl. Ind. Bat. 3 (1857) 217 (type!).

*Scindapsus cuscuaria* Engl. & Krause in Engl. Pflanzenreich 37 (1908) 68, non *Pothos cuscuaria* Aubl.

*Pothos cuscuaria* Gmel. Syst. 1 (1796) 274 (type!), non Aubl. 1775.

*Adpendix cuscuaria latifolia* Rumph. Herb. Amb. 5: 488, t. 183, f. 1.

AMBOINA, Soja, Way tommo, and near the town of Amboina, *Robinson Pl. Rumph. Amb.* 114, 115, August, 1913, on trees, altitude 7 to 250 meters, locally known as *kelady utan* and *daun mo*.

The specific name *cuscuaria* is invalid for this species. *Pothos cuscuaria* Aubl., Hist. Pl. Guiane Franç. (1775) 840, was based on specimens from South America with no reference to Rumphius, although the specific name may have been taken from Rumphius. *Pothos cuscuaria* Gmel., Syst. 1 (1796) 274, however, was based wholly on Rumphius, not on Aublet. *Aglaonema cuscuaria* Miq. was based on *Pothos cuscuaria* Gmel. (non Aubl.) and *Cuscuaria latifolia* Rumph., the latter being, accordingly, its type. Poiret, in Lam. Encycl. 5 (1804) 605, follows Gmelin, as do also Roemer and Schultes, Kunth, and Dietrich.

## ACORUS Linnaeus

**ACORUS CALAMUS** Linn. Sp. Pl. (1753) 324.

*Acorum palustre et terrestre* Rumph. Herb. Amb. 5: 178, t. 72, f. 1.

The common sweet flag, amply described and fairly well figured by Rumphius, is not represented in our Amboina collections. It is found widely scattered in the Malayan region, sometimes cultivated, occasionally wild at higher altitudes. It was first reduced by Linnaeus in Stickman, Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 130, which has very generally been followed by later authors. Loureiro, Fl. Cochinch. (1790) 208, placed it under *Orontium cochinchinense* Lour.=*Acorus cochinchinensis* Schott.=*Acorus calamus* Linn. Schultes, Syst. 7<sup>1</sup> (1829) 174, retains *Acorus terrestris* Rumph. as a species distinct from *A. calamus* Linn., following Spreng., Syst. 2 (1825) 118, who in turn based *Acorus terrestris* Spreng. on *Acorus calamus* Lour. Engler, DC. Monog. Phan. 2 (1879) 217, cites the Rumphian figure and description under *Acorus calamus* Linn. var. *terrestris* (Spreng.) Engl.

## EPIPREMNUM Schott

EPIPREMNUM PINNATUM (Linn.) Engl. Pflanzenreich 37 (1908) 60.

*Pothos pinnata* Linn. Sp. Pl. ed. 2 (1763) 1374 (type!).

*Scindapsus pinnatus* Schott Melet. 1 (1832) 21.

*Adpendix laciniata* Rumph. Herb. Amb. 5: 489, t. 183, f. 2.

AMBOINA, Ayer putri and Amahoesoe, Robinson Pl. Rumph. Amb. 113, August, 1913, on trees at low altitudes, locally known as *tapinawa*.

*Pothos pinnata* Linn., as originally published, is based wholly on the description and figure of Rumphius's *Adpendix laciniata*. In addition to the synonyms given above, it has been cited by some authors under *Rhaphidophora lacera* Hassk. and *Scindapsus pertusus* Schott, both synonyms of *Epipremnum pinnatum* Engl. The species extends from India through Malaya to Polynesia.

## AMORPHOPHALLUS \* Blume

AMORPHOPHALLUS CAMPANULATUS (Roxb.) Blume ex Decne. in Ann. Mus. Hist. Nat. Paris 3 (1834) 366.

*Arum campanulatum* Roxb. Hort. Beng. (1814) 65, *nomen nudum*, Pl. Coromandel 3 (1819) 69, t. 272, Fl. Ind. ed. 2, 3 (1832) 509.

*Arum rumphii* Gaudich. Bot. Freyc. Voy. (1826) 427, t. 39.

*Amorphophallus sativus* Blume Rumphia 1 (1835) 145 (type!).

*Conophallus* ? *sativus* Schott Prodr. (1860) 35.

*Tacca sativa* Rumph. Herb. Amb. 5: 324, t. 112.

*Tacca phallifera* Rumph. quoad *Tacca* *fungus* Rumph. Herb. Amb. 5: 326, t. 113, f. 2.

Not represented in our Amboina collections. *Tacca sativa* Rumph. is perhaps a mixture of *Tacca pinnatifida* Forst. and *Amorphophallus*; *Tacca phallifera* Rumph. certainly is. The description of the vegetative characters, however, manifestly applies to *Amorphophallus campanulatus* Blume; the figure is very poor. Linnaeus erroneously reduced *Tacca sativa* Rumph. to *Dracontium polyphyllum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131. Loureiro, Fl. Cochinch. (1790) 300, placed it under *Tacca pinnatifida* Forst. Roxburgh correctly placed it under *Arum campanulatum* Roxb. = *Amorphophallus campanulatus*, together with the inflorescence described as *Tacca* *fungus* and figured, t. 113, f. 2. *Amorphophallus sativus* Blume is based wholly on the Rumphian description and figure, and this species Engler, Pflanzenreich 48 (1911) 109, includes under *species dubiae*.

*Tacca phallifera* Rumph. is made up of *Tacca pinnatifida* Forst. and the inflorescence of *Amorphophallus campanulatus*

\* Retained name, Brussels Congress; *Candarum* Reichb. (1832) is older.

Blume, the plate presenting the vegetative parts of *Tacca*, its infructescence, and detached fruits, *f. 1, a, b*; and *f. 2* the inflorescence of *Amorphophallus campanulatus* Blume, described by Rumphius as *Taccae fungus*. The latter figure is cited by Roxburgh in the original description of *Arum campanulatum* and is certainly correctly placed.

#### HOMALOMENA Schott

**HOMALOMENA CORDATA** (Houtt.) Schott Melet. 1 (1832) 20.

*Dracontium cordatum* Houtt. Handleid. 11 (1774-83) 200, *t. 71, f. 2*.

**Dracunculus amboinicus niger** Rumph. Herb. Amb. 5: 322, *t. 111, f. 2*.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 111*, August 24, 1913, on shaded banks, altitude about 15 meters.

*Dracunculus amboinicus*, as figured by Rumphius, was erroneously reduced by Linnaeus to *Arum divaricatum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131. By Loureiro, Fl. Cochinch. (1790) 532, it was placed with doubt under *Calla occulta* Lour., which may be the same as the closely allied *Homalomena aromatica* Schott. By other authors it has been reduced to *Homalomena rubescens* Kunth, *H. rubra* Kunth, and other allied forms. The Amboina specimen cited above agrees with the figure given by Rumphius, agrees with the description of *Dracunculus amboinicus niger*, and agrees also with *Homalomena cordata* Schott as recently described by Engler, Pflanzenreich 55 (1912) 57. Rumphius does not indicate which of the four forms described under *Dracunculus amboinicus* he intended the figure to represent, but I agree with Engler in referring it to the one first described, namely, *Dracunculus amboinicus niger*.

The form described by Rumphius as *Dracunculus amboinicus* II *albus*, is apparently very closely allied to, if not identical with, *Homalomena cordata* (Houtt.) Schott, and may be the same as *Homalomena aromatica* (Roxb.) Schott, which is reported from Amboina by Engler; it can scarcely be *Homalomena alba* Hassk., to which Hasskarl reduced it, Neue Schlüssel (1866) 128, because as far as is known this species is confined to Java. *Dracunculus amboinicus* III *ruber* should be compared with both *Homalomena cordata* Schott and *H. aromatica* Schott. Hasskarl, following Kunth, reduced it to *Homalomena rubescens* Kunth, which is manifestly an error, as this species is not known from the Malay Archipelago. More comprehensive collections are neces-

sary from Amboina before the exact status of these two forms can be determined.

**SCHISMATOGLOTTIS** Zollinger and Moritzi

**SCHISMATOGLOTTIS CALYPTRATA** (Roxb.) Zoll. & Mor. Syst. Verz. (1854) 83.

*Calla calyptrata* Roxb. Hort. Beng. (1814) 65, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 514.

*Homalomena calyptratum* Kunth. Enum. 3 (1841) 57.

*Schismatoglottis longipes* Miq. Fl. Ind. Bat. 3 (1859) 214.

*Arisarum esculentum* Rumph. Herb. Amb. 5: 321, t. 111, f. 1.

AMBOINA, Halong, Robinson Pl. Rumph. Amb. 112, September 26, 1913, river banks at an altitude of 40 meters, locally known as *kasisi*.

Linnaeus originally reduced *Arum esculentum*, through error, to *Arum peregrinum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131. The type of *Calla calyptrata* Roxb. was from Amboina, and Roxburgh cites the Rumphian figure and description in the original description as representing his species. Other names involved in the reduction are *Colocasia humilis* Hassk. and *Schismatoglottis longipes* Miq.

**AGLAONEMA** Schott

**AGLAONEMA OBLONGIFOLIUM** (Roxb.) Kunth Enum. 3 (1841) 55.

*Calla oblongifolia* Roxb. Hort. Beng. (1814) 65 (type!); Fl. Ind. ed. 2, 3 (1832) 516.

*Aglaonema marantifolium* Blume Rumphia 1 (1835) 153.

*Scindapsus erectus* Presl Epim. (1851) 241 (type!).

*Arum aquaticum* Rumph. Herb. Amb. 5: 312, t. 108.

*Adpendix erecta* Rumph. Herb. Amb. 5: 487, t. 182, f. 2.

Not represented in our Amboina collections. The figures and the descriptions of both the Rumphian species cited above agree closely with *Aglaonema oblongifolium* Kunth (*A. marantifolium* Blume) as currently interpreted. *Arum aquaticum* Rumph. is the whole basis of *Calla oblongifolia* Roxb. as originally published by Roxburgh, Hort. Beng. (1814) 65, by citation of the Rumphian figure; see C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 414, 419. The description subsequently published by Roxburgh was based on specimens cultivated at Calcutta, which originated in the Moluccas. *Adpendix erecta* Rumph. is the basis of *Scindapsus erectus* Presl and was also cited by Blume in the original description of *Aglaonema marantifolium* Blume. Linnaeus first reduced *Arum aquaticum* Rumph. to *Arum ovatum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1251, Sp. Pl. ed. 2 (1763) 1371, but this disposition of it was entirely wrong.

## ALOCASIA Necker

**ALOCASIA MACRORRHIZA** (Linn.) Schott Melet. (1832) 18.

*Arum macrorrhizon* Linn. Sp. Pl. (1753) 965.

*Arum mucronatum* Lam. Encycl. 3 (1789) 12 (type!).

*Arum silvestre* I *latifolium* Rumph. Herb. Amb. 5: 310.

*Arum indicum sativum* Rumph. Herb. Amb. 5: 308, t. 106.

AMBOINA, Kati-kati and Halong, *Robinson Pl. Rumph. Amb.* 110, September, 1913, near streams, altitude 40 to 70 meters, locally known as *bira* and *bira puti*.

*Arum indicum sativum* Rumph. was originally reduced by Linnaeus, with doubt, to *Arum arborescens* Linn., in *Stickman Herb. Amb.* (1754) 22, *Amoen. Acad.* 4 (1759) 131, but is entirely different from this species. Lamarck, *Encycl.* 3 (1789) 12, made it the type of his *Arum mucronatum*. Loureiro, *Fl. Cochinch.* (1790) 536, referred it to his *Arum indicum*, which is supposed to be a synonym of *Colocasia indica* Engl. Forster, *Pl. Esculent.* (1768) 58, correctly reduced it to *Arum macrorrhizon* Linn. = *Alocasia macrorrhiza* (Linn.) Schott. Rumphius very briefly described three forms; namely, I *nigrum*, II *fuscum*, and III *album*, the first of which Hasskarl, *Neue Schlüssel* (1866) 126, referred to typical *Alocasia indica* Schott, and the last two he referred to *Colocasia indica* Kunth var. *atroviridis* Hassk. and *C. indica* Kunth var. *pallida* Hassk., respectively, but *Colocasia indica* Kunth, non Engl., is supposed to be a synonym of *Alocasia indica* Schott. The descriptions are so very short that it is impossible definitely to determine just what forms were intended, but in all probability they were merely variants of *Alocasia macrorrhiza* (Linn.) Schott. I can see no valid reason for considering that *Arum silvestre* I *latifolium* Rumph., *Herb. Amb.* 5: 310 (non t. 107), represents other than a form of *Alocasia macrorrhiza* Schott; see *Alocasia longiloba* Miq.

**ALOCASIA LONGILOBA** Miq. *Fl. Ind. Bat.* 3 (1857) 207?

*Arum silvestre* II *medium* Rumph. Herb. Amb. 5: 310, t. 107.

AMBOINA, Soja, in forests, altitude about 400 meters, *Robinson Pl. Rumph. Amb.* 109, August 2, 1913.

The specimen lacks the spathe, but presents the fruiting spadix. It unquestionably represents the form figured by Rumphius under *Arum silvestre*; and I consider that the figure conforms to *Arum silvestre* II *medium* rather than to *Arum silvestre* I *latifolium*, although it has very generally been referred to the latter. *Arum silvestre* I *latifolium* I take to be a form of *Alocasia macrorrhiza* Schott, above. Hasskarl, *Neue Schlüssel* (1866) 126, reduced *Arum silvestre* II *medium* to *Alocasia montana* Schott, certainly

an erroneous disposition of it. The figure has been referred to various species—by Linnaeus, through error, to *Arum sagittifolium* Linn., in Stickman Herb. Amb. (1753) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1251; by Schott, Prodr. (1860) 144, to *Alocasia indica* Schott; and by Miquel, Fl. Ind. Bat. 3 (1857) 207, with doubt to *Alocasia longiloba* Miq. *Alocasia indica* Schott is a species of uncertain status; and, as generally interpreted, the specific name is probably invalid. It is supposed to be *Arum indicum* Roxb., Fl. Ind. ed. 2, 3 (1832) 498, non *Arum indicum* Lour., Fl. Cochinch. (1790) 536, but the specific name should go with Loureiro's species, which is supposed to be *Colocasia indica*. I have not seen Schott's original publication of *Alocasia indica*. At any rate, the plant figured by Rumphius as *Arum silvestre* has little in common with the one described by Roxburgh as *Arum indicum* or with the one described by Loureiro under the same name.

#### COLOCASIA Schott

**COLOCASIA ESCULENTA** (Linn.) Schott Melet. 1 (1832) 18.

*Arum esculentum* Linn. Sp. Pl. (1753) 965.

*Arum colocasia* Linn. Sp. Pl. (1753) 965.

*Colocasia antiquorum* Schott Melet. 1 (1832) 18.

*Arum aegyptium* Rumph. Herb. Amb. 5: 313, t. 109.

*Caladium aquatile* Rumph. Herb. Amb. 5: 318, t. 110, f. 1.

Taro is not represented in our Amboina collections, although doubtless the plant, in several forms, is still cultivated in Amboina as in all parts of the Indo-Malayan region. Like many widely cultivated plants, the species is enormously variable; and, being poorly represented in herbaria, no satisfactory arrangement of the numerous forms and varieties has been proposed, nor is any attempted arrangement of these likely to prove satisfactory unless based on a comprehensive collection of living plants. Linnaeus originally reduced *Arum aegyptium* Rumph. to *Arum colocasia* Linn., and *Caladium aquatile* Rumph. to *Arum esculentum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1251, and by later authors both have been referred to the above names and to numerous other synonyms of the species. What is apparently the oldest valid specific name for the collective species is here adopted. Various names involved in the reduction of the forms figured and described by Rumphius are *Arum peltatum* Lam., *Colocasia vera* Hassk., various proposed varieties of *Colocasia antiquorum* Schott, *Caladium esculentum* Vent., *Caladium nymphaeifolium* Willd., and *Caladium esculentum* var. *aquatilis* Hassk. Under

*Arum aegyptium* Rumphius describes eight forms or varieties, and under *Caladium aquatile* two, all of which are reducible to *Colocasia esculenta* Schott, *sensu latiore*. I cannot agree with W. F. Wight, Contr. U. S. Nat. Herb. 9 (1905) 206, in interpreting the genus *Caladium* as typified by the Rumphian description. The type of *Caladium*, the plant figured, and the one to which the description applies, is *Caladium bicolor* Vent.

#### TYPHONIUM Schott

**TYPHONIUM DIVARICATUM** (Linn.) Decne. in Nuov. Ann. Mus. Paris 3 (1834) 367; Blume Rumphia 1 (1835) 130 var. **ROBUSTUM** Kunth. Enum. 3 (1841) 26.

*Arum divaricatum* Linn. Sp. Pl. ed. 2 (1863) 1369.

*Typhonium javanicum* Miq. Fl. Ind. Bat. 3 (1857) 193.

*Arisarum amboinicum* Rumph. Herb. Amb. 5: 319, t. 110, f. 2.

This species is not represented in our Amboina collections. The reduction and synonymy follow Engler, in DC. Monog. Phan. 2 (1879) 612. Linnaeus referred it to *Arum trilobum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, and to *A. trilobatum* Linn., in Syst. ed. 10 (1759) 1251, Sp. Pl. ed. 2 (1763) 1369, in which he was followed by all authors until Blume placed it under *Typhonium divaricatum* Decne. Hasskarl, Neue Schlüssel (1866) 127, placed *Arisarum amboinicum* as the equivalent of *Typhonium divaricatum* Decne.; but, probably through oversight, he did not cite the figure.

#### PISTIA Linnaeus

**PISTIA STRATIOTES** Linn. Sp. Pl. (1753) 963.

*Zala asiatica* Lour. Fl. Cochinch. (1790) 405.

*Pistia minor* Blume Rumphia 1 (1835) 78 (type!).

*Plantago aquatica* Rumph. Herb. Amb. 6: 177, t. 74, f. 2.

*Plantago aquatica* II minor Rumph. Herb. Amb. 6: 177.

This common and well-known species is not represented in our Amboina collections. The reduction to *Pistia stratiotes* Linn. was first made by Linnaeus, in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1249, which has been followed by practically all authors. Loureiro, Fl. Cochinch. (1790) 405, cites it under *Zala asiatica* Lour., a synonym of *Pistia stratiotes* Linn. The form described by Rumphius as *Plantago aquatica* II minor is the whole basis of *Pistia minor* Blume, which is manifestly only a reduced form of *Pistia stratiotes* Linn., due to habitat. The plant is enormously variable in size, depending on the age of the individuals, habitat, etc., the tendency, where the plants are very numerous and crowded, being to a great reduction in size.



## ARACEAE OF UNCERTAIN STATUS

Two forms very briefly described or mentioned by Rumphius are entirely indeterminable; these are *Erva de Sta Maria* Rumph., Herb. Amb. 5: 326, and *Itelpou* Rumph., l. c. 327. Hasskarl thought that the former might be a representative of the *Araceae*, which is probably correct, and that the latter might be *Brachyspatha variabilis* Schott = *Amorphophallus variabilis* Blume; neither was from Amboina.

## LEMNACEAE

## LEMNA Linnaeus

## LEMNA sp.

*Lens palustris* Rumph. Herb. Amb. 6: 178.

Hasskarl, *Neue Schlüssel* (1866) 180, placed this under *Lemna minor* Linn., following Miquel. Rumphius gives no description, and the plant he named may have been any of the Malayan *Lemnaceae* of the genus *Lemna* or the genus *Spirodela*.

## FLAGELLARIACEAE

## FLAGELLARIA Linnaeus

## FLAGELLARIA INDICA Linn. Sp. Pl. (1753) 333.

*Palmijuncus laevis* Rumph. Herb. Amb. 5: 120, t. 59, f. 1.

AMBOINA, Paso and Eri, *Robinson Pl. Rumph. Amb. 211*, September and October, 1913, in thickets near the seashore.

The original reduction of *Palmijuncus laevis* Rumph. to *Flagellaria indica* was made by Linnaeus, in *Stickman Herb. Amb. (1753) 20*, *Amoen. Acad. 4 (1759) 129*, *Syst. ed. 10 (1759) 989*, *Sp. Pl. ed. 2 (1762) 475*, which has been followed by all authors, and which is certainly the correct disposition of it.

## BROMELIACEAE

## ANANAS Tournefort

## ANANAS COMOSUS (Linn.) comb. nov.

*Bromelia ananas* Linn. Sp. Pl. (1753) 285.

*Bromelia comosa* Linn. in *Stickman Herb. Amb. (1754) 21*, *Amoen. Acad. 4 (1759) 130* (type!).

*Ananas sativus* Schultes f. *Syst. 7 (1830) 1283*.

*Ananassa sativa* Lindl. *Bot. Reg. (1827) sub t. 1068*.

*Anassa domestica* Rumph. Herb. Amb. 5: 227, t. 81.

AMBOINA, Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb. 382*, October 3, 1913, semicultivated, locally known as *nanas*.

The common pineapple, as described and figured by Rumphius, is the whole basis of *Bromelia comosa* Linn. as originally pub-

lished by Linnaeus in the year 1754. It is thus the oldest valid specific name for the species. The Rumphian figure, which is excellent, has very generally been cited by various authors under one or the other of the synonyms given above. The forms indicated by Rumphius as *mas*, *femina*, and *alba* are apparently merely cultural forms of the common pineapple.

## COMMELINACEAE

### COMMELINA Linnaeus

**COMMELINA NUDIFLORA** Linn. Sp. Pl. (1753) 41.

*Arundinella* I minor Rumph. Herb. Amb. 6: 23, t. 9, f. 2.

AMBOINA, Soja and Roemah tiga, *Robinson Pl. Rumph. Amb.* 407, July and August, 1913, locally known as *kangkong*.

The Rumphian plant has generally been reduced to *Commelina benghalensis* Linn., and the description, in part, seems to apply to that species. The figure is very poor, but the description is at least sufficiently definite to place the plant Rumphius intended in *Commelina*. Burman f., *Fl. Ind.* (1768) 16, referred it to *Commelina benghalensis* Linn., while *Commelina rumphii* Kostel., *Allg. Med.-Pharm. Fl.* 1 (1831) 126, may have been based wholly or in part on Rumphius (publication not seen).

**COMMELINA BENGHALENSIS** Linn. Sp. Pl. (1753) 41.

*Arundinella* II major Rumph. Herb. Amb. 6: 24.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 406, July 22, 1913, locally known as *kangkong ayer*.

Hasskarl, *Neue Schlüssel* (1866) 155, has suggested *Commelina communis* Linn. as the proper disposition of *Arundinella* II major, but the description appears to me better to apply to *Commelina benghalensis* Linn.

### ANEILEMA R. Brown

**ANEILEMA VITIENSE** Seem. var. **PETIOLATA** C. B. Clarke in DC. *Monog. Phan.* 3 (1881) 220.

*Arundinella* IV Rumph. Herb. Amb. 6: 25.

AMBOINA, Soja and Kaju poeti, *Robinson Pl. Rumph. Amb.* 408, August, 1913, along roadsides and in forests.

Whether the plant is the above form or the very closely allied *Aneilema monadelphum* Kunth, it is undoubtedly the form that Rumphius described. Hasskarl, *Neue Schlüssel* (1866) 155, expressed the opinion that it was some species of *Gramineae*, but the characters indicated by Rumphius for *Arundinella* IV all apply to this species of *Aneilema*.

## CYANOTIS Don

CYANOTIS MOLUCCANA (Roxb.) Merr. in Philip. Journ. Sci. 2 (1907) Bot. 266.

*Commelina moluccana* Roxb. Fl. Ind. ed. 2, 1 (1832) 172.

*Commelina uniflora* Hassk. Commel. Ind. (1870) 104.

*Arundinella III aquatica* Rumph. Herb. Amb. 6: 24?

This reduction of *Arundinella III aquatica* is merely a suggestion. However, it may be merely *Commelina obtusifolia* Vahl, as suggested by Hasskarl, Neue Schlüssel (1866) 155, which is supposed to be a synonym of *Commelina nudiflora* Linn.

## FLOSCOPA Loureiro

FLOSCOPA SCANDENS Lour. Fl. Cochinch. (1790) 193.

*Arundinella V* Rumph. Herb. Amb. 6: 25.

AMBOINA, in sago swamps near the town of Amboina, *Robinson Pl. Rumph. Amb. 409*, July, 1913, locally known as *kangkong ayer*.

The reduction follows Hasskarl, Neue Schlüssel (1866) 165, who suggests *Floscopa paniculata* Hassk. (= *F. scandens* Lour.), as the proper disposition of *Arundinella V* of Rumphius.

## PONTEDERIACEAE

## MONOCHORIA Presl

MONOCHORIA VAGINALIS (Burm. f.) Presl Rel. Haenk. 1 (1827) 128.

*Pontederia vaginalis* Burm. f. Fl. Ind. (1768) 80.

*Olus palustre* Rumph. Herb. Amb. 6: 178, t. 75, f. 1.

AMBOINA, in grassy pools near the town of Amboina, *Robinson Pl. Rumph. Amb. 225*, July 25, 1913.

*Olus palustre* was first reduced to *Monochoria* (*Pontederia*) *vaginalis* by Linnaeus, Mant. 2 (1771) 222, this certainly being the correct disposition of it.

*Olus palustre femina* Rumph., l. c. 178, is probably merely a form of *Monochoria vaginalis* Presl, approaching *M. vaginalis* var. *plantaginea* Solms, and possibly represented by *Pl. Rumph. Amb. 224* from Amboina, August 23, 1913. Hasskarl, Neue Schlüssel (1866) 180, suggests that *Olus palustre femina* is *Monochoria sagittata* Kunth = *M. hastata* Presl, but the description hardly warrants this disposition of it.

## STEMONACEAE

## STEMONA Loureiro

STEMONA TUBEROSA Lour. Fl. Cochinch. (1790) 404.

*Roxburghia gloriosoides* Roxb. Pl. Coromand. 1 (1795) 29, t. 32.

*Ubiun polypoides* I album Rumph. Herb. Amb. 5: 364, t. 129.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 295*, October 29, 1913, climbing over trees along the seashore.

*Ubium polypoides* Rumph. was correctly reduced to *Stemona tuberosa* by Loureiro in the original description of that species, in which disposition of it later authors have generally concurred, including C. H. Wright in his paper on the genus *Stemona*, Journ. Linn. Soc. Bot. 22 (1896) 490-496.

**STEMONA MOLUCCANA** (Blume) C. H. Wright in Journ. Linn. Soc. Bot. 22 (1896) 494.

*Roxburghia moluccana* Blume Enum. Pl. Jav. 1 (1827) 9 (type!).

*Ubium polypoides* II *nigrum* Rumph. Herb. Amb. 5: 365.

This species is figured and fully described by Dr. J. J. Smith, Ic. Bogor. 3 (1897) 111-114, t. 245, 246. Wright's and Blume's descriptions are entirely inadequate. It is by no means certain that the two forms described by Rumphius are really distinct, or that the form figured by him, which I have placed under *Stemona tuberosa* Lour., really belongs with Loureiro's species. *Stemona tuberosa* Lour. and *S. moluccana* C. H. Wright are very closely allied. In this connection it is of interest to note that Dr. Robinson considered that his specimen represented *Ubium polypoides* II *nigrum* Rumph. rather than *U. polypoides* I *album* Rumph. where I have placed it.

## LILIACEAE

### ALOE Linnaeus

**ALOE VERA** Linn. Sp. Pl. (1753) 320.

*Sempervivium indicum majus* Rumph. Herb. Amb. 5: 271.

This was apparently correctly placed by Henschel, Vita Rumph. (1833) 177, who considered it to be *Aloe perfoliata* Linn. var. *vera* Linn. The species is widely cultivated for medicinal purposes in the Malayan region.

### DIANELLA Lamarck

**DIANELLA ODORATA** Blume Enum. 1 (1827) 13.

*Gladiolus odoratus indicus* Rumph. Herb. Amb. 5: 185, t. 73.

AMBOINA, Way tommo and Soja road, Robinson Pl. Rumph. Amb. 505, August, 1913, on grassy slopes and barren hills, altitude 50 to 300 meters.

This was reduced by Linnaeus to *Dracaena ensifolia* Linn. in the original description of that species, Mant. 1 (1767) 63, but his description seems to have been based on actual specimens. At any rate *Dianella ensifolia* (Linn.) DC., as currently interpreted, is not the same as the form that Rumphius described and figured. Lamarck, Encycl. 2 (1786) 276, cites it under *Dianella nemorosa*, but *Dianella nemorosa* Lam. was based on specimens from Bourbon and Isle of France and is a distinct species. *Gladiolus odoratus indicus* Rumph. is unquestionably

identical with *Dianella odorata* Blume, to which it was referred by Blume, Schultes, Kunth, and other authors; see Hallier f., in Nova Guinea 8 (1914) 996.

### PLEOMELE Salisbury

**PLEOMELE ANGUSTIFOLIA** (Roxb.) N. E. Br. in Kew Bull. (1914) 277.

*Dracaena angustifolia* Roxb. Hort. Beng. (1814) 24 (type!), Fl. Ind. ed. 2, 2 (1832) 155.

*Terminalis angustifolia* Rumph. Herb. Amb. 4: 81, t. 35.

AMBOINA, Amahoesoe, Robinson Pl. Rumph. Amb. 506, August 28, 1913, near the seashore, locally known as *chamara*.

*Terminalis angustifolia* Rumph. was originally discussed by Lamarck, Encycl. 2 (1786) 324, under *Dracaena reflexa* Lam., as possibly representing that species. Lamarck's species, however, is quite different from Roxburgh's and is *Pleomele reflexa* N. E. Br. *Terminalis angustifolia* Rumph. is the whole basis of *Dracaena angustifolia* Roxb. as originally published, in the Hortus Bengalensis (1814) 24, by citation of the Rumphian figure. The description, later published by Roxburgh, based on an Amboina specimen cultivated in the botanic garden at Calcutta, unquestionably applies to the same species. *Cordyline rumphii* Hook. is also referable here as a synonym, at least in part.

### TAETSIA Medicus

(*Cordyline* auct., non Adanson)

**TAETSIA FRUTICOSA** (Linn.) comb. nov.

*Convallaria fruticosa* Linn. in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126 (type!), Syst. ed. 10 (1759) 984.

*Asparagus terminalis* Linn. Sp. Pl. ed. 2 (1762) 450.

*Dracaena terminalis* Rich. in Lam. Encycl. 2 (1786) 324.

*Calodracon terminalis* Planch. Fl. des Serres I 6 (1850-51) 137.

*Terminalia fruticosa* Goepp. in Nov. Act. Acad. Nat. Cur. 25 (1855) 53.

*Cordyline terminalis* Kunth in Abh. Acad. Berlin (1820) 30, Enum. 5 (1850) 25.

*Taetsia terminalis* W. F. Wight in Contr. U. S. Nat. Herb. 9 (1905) 382.

*Terminalis alba domestica* Rumph. Herb. Amb. 4: 79, t. 34, f. 1.

*Terminalis alba silvestris* Rumph. Herb. Amb. 4: 80.

*Terminalis rubra* Rumph. Herb. Amb. 4: 80, t. 34, f. 2.

*Terminalis rubra silvestris* Rumph. Herb. Amb. 7: 40, t. 20.

AMBOINA, Batoe merah, Hoenet, and Mahija, Robinson Pl. Rumph. Amb. 507, August and October, 1913, on hills and in light forests, altitude 30 to 150 meters, locally known as *pandusti*, *pandusti puti*, and *daun pandusti*.

The form cited above is exactly *Terminalia alba silvestris*

Rumph., but there is little or no reason for considering that the other three forms named by Rumphius represent distinct species. *Taetsia fruticosa* is widely distributed in the Indo-Malayan region and presents considerable variation in its cultivated forms, especially in the color of its leaves, which vary from green to reddish or purple. "Terminalis Rumph. amb. 4 p. 79. t. 34" is the whole basis of *Convallaria fruticosa* Linn. (1754), but the original description of *Asparagus terminalis* Linn. was manifestly based on an actual specimen; *Terminalis* Rumph. is cited as a synonym. On plate 34, two forms are figured by Rumphius, fig. 1 representing the plant with greenish leaves (*T. alba domestica*), and fig. 2, the plant with reddish or purplish leaves (*T. rubra*); the latter is manifestly only a color variant of the former. Kunth, Enum. 5 (1850) 25, considered that *Terminalis rubra* did not belong to *Cordyline* (*Taetsia*) or even in the *Liliaceae*, but the figure certainly represents the common and well-known *Cordyline terminalis* Kunth=*Taetsia fruticosa* (Linn.) Merr. I consider *Terminalis alba silvestris* Rumph. to be referable to the same species as the other forms described by Rumphius. The chief objection to the reduction of *Terminalis rubra silvestris* to *Taetsia fruticosa* is that the figure represents the nerves of the leaves as altogether too prominent; but this may be due to an error on the part of the artist. Hasskarl, Neue Schlüssel (1866) 190, suggested that it was the same as *Cordyline jacquinii* Kunth var. *rubens* Hassk., but *Cordyline jacquinii* Kunth is supposed to be a synonym of *C. terminalis*.

*Taetsia* Medic. is here deliberately accepted in place of *Cordyline* as the proper generic name of this plant, as it is manifestly the oldest valid one for the genus, in spite of the fact that *Cordyline* Commers., ex Juss. Gen. (1789) 41, is retained in the list of *nomina conservanda* adopted by the Vienna Botanical Congress in preference to *Terminalis* Rumph. The Rumphian designation has no standing as a generic name. *Cordyline* Adanson (1763) is the same as *Sansevieria* Thunb. and antedates Thunberg's name. In adopting *Taetsia*, I agree with N. E. Brown,\* who, while retaining *Cordyline*, states: "At the same time, however, my personal view of the case would be to abolish the use of the name *Cordyline* altogether, in consequence of the great confusion connected with it, and replace it by that of *Taetsia*."

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\* Kew Bull. (1914) 275.

## SMILAX Linnaeus

SMILAX JAVENSIS A. DC. in DC. Monog. Phan. 1 (1878) 175.

*Pseudochina amboinensis* Rumph. Herb. Amb. 5: 437, t. 161.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb. 504*, September 18, 1913, in thickets along the seashore, ascending to an altitude of at least 40 meters, locally known as *tali baduri*.

This was originally reduced by Linnaeus to *Smilax china* Linn., in Stickman Herb. Amb. (1754) 24, but in Amoen. Acad. 4 (1759) 133, the reference to *Smilax china* is excluded, although *Ubiun nummularium*, t. 162 (= *Dioscorea nummularia* Lam.!), is erroneously given as the equivalent of *Smilax china* Linn. In his Mantissa 2 (1771) 499, Linnaeus again erroneously referred *Pseudochina amboinensis* Rumph. to *Smilax zeylanica* Linn., which was followed by all subsequent authors up to the year 1878, when A. de Candolle suggested that it might be the same as *Smilax javensis* A. DC. I know A. de Candolle's species only by description, but the description applies very closely to the Amboina specimen cited above, so that this is probably the correct disposition of *Pseudochina amboinensis* Rumph. However, both *Smilax javensis* A. DC. and the Amboina specimen should be critically compared with the Australian *Smilax australis* R. Br., which is a very closely allied and, perhaps, identical form.

SMILAX LEUCOPHYLLA Blume Enum. Pl. Jav. 1 (1827) 18.

*Pseudochina nigra* Rumph. Herb. Amb. 5: 439.

AMBOINA, Negri lama, *Robinson Pl. Rumph. Amb. 503*, August 8, 1913, climbing on trees, altitude about 15 meters, locally known as *tali baduri*.

This appears to be the correct disposition of *Pseudochina nigra* Rumph., although Hasskarl, Neue Schlüssel (1866) 144, considered it to be referable to the Australian *S. glycyphylla* Sm., a species known only from Australia, and quite different from *S. leucophylla* Blume. The Philippine *Smilax vicaria* Kunth is probably not specifically distinct from Blume's species.

SMILAX LEUCOPHYLLA Blume var. PLATYPHYLLA var. nov.

*Pseudochina alba latifolia* Rumph. Herb. Amb. 4: 438?

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb. 502* (type), September 9, 1913, in forests, altitude about 250 meters, locally known as *tali baduri*.

Ramis distanter crasse aculeatis; foliis coriaceis, usque ad 30 cm longis et 16 cm latis.

This may prove to be specifically distinct from *Smilax leucophylla* Blume when more material is available for study. It is well characterized by its very large leaves, long petioles, and

long infructescences. The petioles, including the very prominent sheathing base, are 5 to 6 cm in length. The infructescences are about 20 cm long, with at least four long-peduncled umbels. Fruits globose, about 1 cm in diameter.

It may or may not be the same as *Pseudochina alba latifolia* Rumph., but it is quite certain that the Rumphian plant is not the same as *Smilax villandia* Ham.=*S. indica* Vitm. under which name it is briefly discussed by Hasskarl.

**SMILAX CHINA** Linn. Sp. Pl. (1753) 1029?

*Smilax sarmentis spinulosis* etc. Rumph. Herb. Amb. 7: 72, t. 30?

*Radix chinae* Rumph. Herb. Amb. 5: 441?

The identity of the two Rumphian synonyms cited above can only be surmised. Hasskarl, *Neue Schlüssel* (1866) 144, considers *Radix chinae* to be the same as *Smilax aspera* Linn., and the other as possibly representing *S. bauhinoides* Kunth. Plate 30 of the *Auctuarium* is missing in our copy of the *Herbarium Amboinense*.

## AMARYLLIDACEAE

### CRINUM Linnaeus

**CRINUM ASIATICUM** Linn. Sp. Pl. (1753) 292.

*Crinum toxicarium* Roxb. Hort. Beng. (1814) 23 (type!), Fl. Ind. ed. 2, 2 (1832) 134.

*Radix toxicaria* l. major Rumph. Herb. Amb. 6: 155, t. 69.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb. 130*, August 30, 1913, along the seashore, locally known as *bauang laut*.

*Radix toxicaria* Rumph. was originally reduced by Linnaeus to *Crinum asiaticum* Linn., in *Stickman Herb. Amb. (1754) 28*, *Amoen. Acad. 4 (1759) 136*, *Syst. ed. 10 (1759) 976*, a reduction that is certainly correct, and one that has been accepted by most authors. It is the type of *Crinum toxicarium* Roxb., which was based wholly on the Rumphian figure and description, *Hort. Bengal. (1814) 23*; see C. B. Robinson in *Philip. Journ. Sci. 7 (1912) Bot. 413*. It was cited later in the very brief description given in the second edition of the *Flora Indica*. The species is very widely distributed along the seashores of the Indo-Malayan and Polynesian regions; it is exceedingly variable in size, depending on the age of the plant and on its habitat. The form very briefly described by Rumphius as *Radix toxicaria* l. *montana*, l. c. 156, from Ceram, is probably merely a dwarfed form of *Crinum asiaticum* Linn.



**CRINUM RUMPHII** sp. nov.

*Radix toxicaria II terrestris* Rumph. Herb. Amb. 6: 156.

AMBOINA, Hitoë lama, *Robinson Pl. Rumph. Amb.* 131 (type), October 8, 1913, in forests, altitude about 200 meters, locally known as *pohon tolok*.

Planta magna, glabra; foliis ut videtur numerosis, usque ad 70 cm longis et 18 cm latis, chartaceis, acutis, basi angustatis, petiolo circiter 30 cm longo. Floribus numerosis, breviter pedicellatis, tubo circiter 15 cm longo, segmentis lineari-lanceolatis, circiter 14 cm longis et 6 mm latis.

A large, entirely glabrous plant. Leaves apparently numerous, when dry dark-olivaceous chartaceous, about 70 cm long and 18 cm wide, acute, base narrowed, the petiole about 20 cm long, and when dry and flattened out 2.5 to 3 cm wide. Peduncle not seen. Flowers numerous, white, at least 20 to each peduncle, the spathe-valves about 18 cm long and 3 cm wide, narrowed upward, subacute. Pedicels 1 to 1.5 cm long, the perianth-tube slender, including the ovary about 15 cm long. Flowers white, the filaments lilac. Segments linear-lanceolate, about 14 cm long and 6 mm wide, acute. Fruit not seen.

A species well characterized by its very large leaves and long slender perianth-tube. It is manifestly in the same group as *Crinum asiaticum* Linn., but differs from that species in many characters, as well as in its entirely different habitat. Hasskarl, *Neue Schlüssel* (1866) 178, thought that *Radix toxicaria II terrestris* might be the same as *Crinum procerum* Carey, which, however, is a synonym of *C. asiaticum* Linn.

**CRINUM ZEYLANICUM** Linn. Syst. ed. 12 (1767) 236.

*Amaryllis zeylanica* Linn. Sp. Pl. (1753) 293.

*Amaryllis lineata* Lam. Encycl. 1 (1783) 123.

*Tulipa javana* Rumph. Herb. Amb. 5: 306, t. 105.

This species is not represented in our Amboina collections, although doubtless it is still cultivated in Amboina as it is in other parts of Malaya. Rumphius states that it was introduced into Amboina from Java about 1670. The figure is an excellent representation of *Crinum zeylanicum* Linn. It was first reduced by Linnaeus to *Amaryllis zeylanica* Linn., in *Stickman Herb. Amb.* (1754) 22, *Amoen. Acad.* 4 (1759) 131, *Syst. ed.* 10 (1759) 977, *Sp. Pl. ed.* 2 (1762) 421, which as *Crinum zeylanicum* Linn. has very generally been accepted as the correct disposition of *Tulipa javana* Rumph.

## EURYCLES Salisbury

**EURYCLES AMBOINENSIS** (Linn.) Lindl. in Loud. Encycl. Pl. (1829) 242.

*Pancratium amboinense* Linn. Sp. Pl. (1753) 291.

*Pancratium narbonense* Linn. in Stickman Herb. Amb. (1754) 28 (type!).

*Amaryllis rotundifolia* Lam. Encycl. 1 (1783) 124.

*Eurycles silvestris* Salisb. in Trans. Hort. Soc. 1 (1812) 337.

*Cepa silvestris* Rumph. Herb. Amb. 6: 160, t. 70, f. 1.

This widely distributed, well-known, characteristic species is not represented in our Amboina collections. Linnaeus, in Stickman Herb. Amb. (1754) 28, first reduced *Cepa silvestris* Rumph. to *Pancratium narbonense* Linn.; this name, apparently a *lapsus calami* for *P. amboinense*, is not listed in Index Kewensis and, being based wholly on Rumphius, thus becomes a synonym of *Eurycles amboinensis* Lindl. In the reprint of Stickman's paper, Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 976, Sp. Pl. ed. 2 (1762) 419, it is properly placed under *Pancratium amboinense* Linn.=*Eurycles amboinensis* Lindl. Willdenow, Sp. Pl. 2 (1799) 47, cites it under *Crinum nervosum* L'Hérit.; and other authors cite it under *Amaryllis rotundifolia* Lam., *Eurycles coronata* Salisb., *E. nervosa* Roem., and *E. silvestris* Salisb.—all synonyms of *E. amboinensis* (Linn.) Lindl.

## CURCULIGO Gaertner

**CURCULIGO ORCHOIDES** Gaertn. Fruct. 1 (1788) 63, t. 16.

*Curculigo rumphiana* Schultes Syst. 7<sup>2</sup> (1830) 757 (type!).

*Orchis amboinica major* II Rumph. Herb. Amb. 6: 117, t. 54, f. 1.

AMBOINA, Batoe gadjah, Robinson Pl. Rumph. Amb. 128, August 5, 1913, on open hillsides, altitude about 150 meters.

*Orchis amboinica major* II, as described and figured by Rumphius, was cited by Gaertner in the original description of *Curculigo orchoides* Gaertn. as a synonym of his species, and the Amboina specimen cited above agrees with the species as currently interpreted. Most authors have followed Gaertner in this reduction, but Schultes, in a discussion following the description of *Curculigo orchoides*, considers the Rumphian plant to represent a distinct species, which he called *Curculigo rumphiana* Schultes and which was based wholly on the Rumphian reference cited above. *Curculigo rumphiana* Schultes is not listed in Index Kewensis, and I consider it to be merely a synonym of the much older name, *Curculigo orchoides* Gaertn.

**CURCULIGO CAPITULATA** (Lour.) O. Kuntze Rev. Gen. Pl. 1 (1891) 703.

*Leucojum capitulatum* Lour. Fl. Cochinch. (1790) 199.

*Curculigo recurvata* Dryander in Ait. Hort. Kew. ed. 2, 2 (1811) 253.

*Curculigo sumatrana* Roxb. Hort. Beng. (1814) 24 (type!).

*Involucrum s. angraecum terrestre tertium* Rumph. Herb. Amb. 6: 114, t. 53.

AMBOINA, Kati-kati, Robinson Pl. Rumph. Amb. 129, October 7, 1913, on banks, altitude about 80 meters.

This was cited by Loureiro, Fl. Cochinch. (1790) 13, under *Phyllodes placentaria* Lour.=*Phrynium capitatum* Willd., a species that is entirely different from *Curculigo capitulata* O. Kuntze. Poiret, in Lam. Encycl. Suppl. 5 (1817) 645, referred it to *Curculigo latifolia* Dry., in which he was followed by numerous authors. Henschel and Pritzel refer it to *Curculigo recurvata* Dry. It is the actual type of *Curculigo sumatrana* Roxb., as published in Hort. Beng. (1814) 24, by citation of the Rumphian figure; see C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 413. *Curculigo sumatrana* Roxb., as actually described from Sumatran specimens later, Roxburg Fl. Ind. ed. 2, 2 (1832) 146, seems to be distinct and is generally cited as a synonym of *Curculigo latifolia* Dryand.

#### PANCRATIUM Dillenius

PANCRATIUM ZEYLANICUM Linn. Sp. Pl. (1753) 290.

*Lilium indicum* Rumph. Herb. Amb. 6: 161, t. 70, f. 2.

This common and well-known species, excellently figured by Rumphius, is not represented in our Amboina collections. It occurs here and there in the vicinity of towns and habitations throughout the Malayan region. *Lilium indicum* Rumph. was first reduced to *Pancratiium zeylanicum* Linn., in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 136, Sp. Pl. ed. 2 (1762) 417, which is certainly the correct disposition of it, and which has been accepted by subsequent authors.

The form described by Rumphius, in the same chapter, as *Lilium indicum javanicum*, Herb. Amb. 6: 162, a Javan plant with yellow flowers, is indeterminable from the data at present available. Hasskarl, Neue Schlüssel (1866) 178, has suggested that it might be *Calostemma luteum* Sims, but it is entirely improbable that this Australian species had been introduced into Java at the time when Rumphius wrote his account.

#### POLIANTHES Linnaeus

POLIANTHES TUBEROSA Linn. Sp. Pl. (1753) 316.

*Amica nocturna* Rumph. Herb. Amb. 5: 285, t. 98.

The tuberose is not represented in our Amboina collections, but is probably still cultivated in Amboina, as it is in various

parts of the Malayan region and the Philippines. *Amica nocturna* Rumph. was first reduced to *Polianthes tuberosa* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 984, Sp. Pl. ed. 2 (1762) 453, which is certainly the correct disposition of it, and which has been accepted by all subsequent authors.

#### AGAVE Linnaeus

**AGAVE CANTALA** Roxb. Hort. Beng. (1814) 25, *nomen nudum*.

*Furcraea cantala* Haworth Syn. Pl. Succul. Suppl. (1819) 42.

*Agave cantula* Roxb. Fl. Ind. ed. 2, 2 (1832) 167.

*Agave rumphii* Hassk. in Hoeb. & DeVriese Tijdschr. 10 (1843) 121.

*Aloe americana* Rumph. Herb. Amb. 5: 273, t. 94.

The common maguey plant is not represented in our Amboina collections. *Aloe americana* Rumph. was originally reduced by Linnaeus to *Aloe vivipara* Linn., in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, while in the Syst. ed. 10 (1759) 986, Sp. Pl. ed. 2 (1762) 461, he placed it under *Agave vivipara* Linn. in which he was followed by various authors. This, however, seems to be a different species, originally based on material from tropical America. *Agave cantala* Roxb., as originally used, is a *nomen nudum*, but the spelling of the specific name is fixed by Haworth's publication of *Furcraea cantala* in 1819, with a reference to Roxburgh. However, Roxburgh himself published the name, with a brief description and a reference to Rumphius, as *Agave cantula* Roxb. *Agave rumphii* Hassk. is apparently typified by *Aloe americana* Rumph. While the species is of Mexican origin, having been introduced into the Philippines at an early date by the Spaniards, the Indo-Malayan form has not as yet been satisfactorily connected with any described American species.

#### TACCACEAE

##### TACCA \* Forster

**TACCA PINNATIFIDA** Forst. Char. Gen. (1776) 70, t. 35.

*Tacca dubia* Schultes Syst. 7<sup>1</sup> (1829) 167 (type!).

*Tacca litorea* Rumph. Herb. Amb. 5: 328, t. 114.

*Tacca phallifera* Rumph. Herb. Amb. 5: 326 p. p., t. 113, f. 1, a, b.

This species is not represented in our Amboina collections. The illustrations given by Rumphius of *Tacca litorea*, and of *T. phallifera* t. 113, f. 1, are both excellent representations of the

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\* Retained name, Brussels Congress; *Leontopetaloides* Boehm. (1760) is older.

common and well-known *Tacca pinnatifida* Forst. The species was confused by Rumphius with *Amorphophallus campanulatus* Blume (see p. 127), *Tacca phallifera* Rumph. being made up of *Tacca pinnatifida* Forst. with the inflorescence of *Amorphophallus campanulatus* Blume, which was described by Rumphius as *Taccæ fungus*. *Tacca sativa* Rumph., l. c. 5:324, is also apparently a mixture of *Tacca pinnatifida* Forst. and *Amorphophallus campanulatus* Blume, but the description for the most part and the figure are *Amorphophallus*, not *Tacca*. *Tacca dubia* Schultes was based wholly on *Tacca phallifera* Rumph., excluding *Taccæ fungus* and t. 113, f. 2, and is manifestly nothing but *Tacca pinnatifida* Forst. Forster apparently took his generic name from Rumphius, and in the original publication of the species he cites both *Tacca sativa* Rumph., t. 112, and *Tacca litorea* Rumph., t. 114, as synonyms. The type, however, was a Polynesian specimen.

**TACCA PALMATA** Blume Enum. Pl. Jav. 1 (1827) 83.

*Tacca montana* Schultes Syst. 7<sup>1</sup> (1829) 168.

*Tacca rumphii* Schauer in Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 1: 442.

*Tacca montana* Rumph. Herb. Amb. 5: 329, t. 115.

This species is not represented in our Amboina collections. I consider that both forms described by Rumphius—I minor and II major—are referable here. The reduction was first made by Blume. Schultes merely substituted Rumphius's name for that proposed by Blume, reducing *Tacca palmata* Blume as a synonym. *Tacca rumphii* Schauer was based on Luzon specimens, manifestly the same as *Tacca palmata* Blume, with the addition of a reference to *Tacca montana* Rumph. Herb. Amb. 5: 329, t. 115.

## DIOSCOREACEAE

### DIOSCOREA Linnaeus

Rumphius described and figured a number of forms and species of *Dioscorea*, under the general name *Ubiu*, which have been in part more or less misunderstood by subsequent authors. But two species are represented in our Amboina collections. These are both common and well-known species, so that the material available for study hardly assists in clearing up species of doubtful status so far as those based wholly or partly on Rumphius's descriptions and figures are concerned.\*

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\*Prain and Burkill. A synopsis of the Dioscoreas of the Old World, Africa excluded, with descriptions of new species and of varieties. *Journ. As. Soc. Beng.* II 10 (1914) 1-41.

**DIOSCOREA BULBIFERA** Linn. Sp. Pl. (1753) 1033.

*Ubium pomiferum* Rumph. Herb. Amb. 5: 354, t. 124.

This species is not represented in our Amboina collections. The figure, however, unmistakably represents *Dioscorea bulbifera* Linn. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1294, which has been followed by all authors. *Ubium pomiferum silvestre* Rumph., l. c. 354, is probably merely a form of the same species. Mr. Burkill notes that the wild form mentioned by Rumphius is in all probability *Dioscorea bulbifera* Linn. var. *vera* Prain and Burkill, and that the cultivated forms may include var. *sativa* Prain and Burkill and var. *suavior* Prain and Burkill.

**DIOSCOREA ALATA** Linn. Sp. Pl. (1753) 1033.

*Ubium vulgare* Rumph. Herb. Amb. 5: 346, t. 120.

*Ubium digitatum* Rumph. Herb. Amb. 5: 350, t. 121.

*Ubium anguinum* Rumph. Herb. Amb. 5: 351, t. 122.

*Ubium ovale* Rumph. Herb. Amb. 5: 356, t. 125.

*Ubium draconum* Rumph. Herb. Amb. 5: 351, t. 122, f. D, E.

*Ubium anniversarium* Rumph. Herb. Amb. 5: 353, t. 123.

*Inhame* St. Thome Rumph. Herb. Amb. 5: 355.

This commonly cultivated yam is not represented in our Amboina collections. However, I have little doubt that the six forms figured by Rumphius as *Ubium vulgare*, *U. digitatum*, *U. anguinum*, *U. ovale*, *U. draconum*, and *U. anniversarium* are all referable to *Dioscorea alata* Linn., including the several forms described under the first, second, and fourth. The species is enormously variable in the shape, color, and size of its subterranean parts, but is apparently fairly uniform in its vegetative and floral characters. The first three were originally and erroneously reduced by Linnaeus to *Dioscorea oppositifolia* Linn., in Stickman Herb. Amb. (1754) 22, 23, Amoen. Acad. 4 (1759) 131, but later authors have generally cited them as synonyms of *Dioscorea alata* Linn., where they properly belong. *Ubium ovale* Rumph. has been cited by some authors as a synonym of *Dioscorea bulbifera* Linn., but from the figure and description it is apparently merely the bulbil-bearing form of *Dioscorea alata* Linn. *Ubium anniversarium* Rumph. has been quoted by Henschel, Hasskarl, Kunth, and Miquel as a possible synonym of *Dioscorea spiculata* Blume, but Mr. I. H. Burkill has called my attention to the fact that it is the same form as the curious race of *Dioscorea alata* figured by him in Gard. Bull. Straits Settl. 1 (1915) 301, figs. 2-6, (1917) 393, pl. 5, 6; and

in the Philip. Agr. and Forester 3 (1915) 207, *plate 2, figs. 12, 14, 18.*

In a recent letter to me Mr. Burkill states:

Of the Philippine *Dioscorea alata* I have in Singapore in a few races the tuberous roots do not respond to geotropism in the normal way, but ascend to the surface of the soil where conditions are apt to kill them. If one continues to protect them by covering them with earth they continue to grow and may become greatly elongated. The drawings of the yams on page 30 of Gardens' Bulletin were made at a time when I had not discovered how to earth them up. If you will examine the figure of Rumphius's *Ubium anguinum* you will note that what I take to be the same race is represented. I believe that this type of yam arose and was propagated by planting it in the midden at the back door and that the yams continued to grow upward with the accumulation of rubbish.

Mr. Burkill calls my attention to the fact that *Inhame St. Thome* of Piso is *Dioscorea alata* Linn., and that Rumphius was wrong in ascribing it to his *Ubium pomiferum*.

**DIOSCOREA ESCULENTA** (Lour.) Burkill in Gard. Bull. Straits Settl. 1 (1917) 396.

*Oncus esculentus* Lour. Fl. Cochinch. (1790) 194.

*Dioscorea combilium* Ham. in Wall. Cat. (1832) no. 5103A.

*Dioscorea fasciculata* Roxb. Hort. Beng. (1814) 72, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 801.

*Dioscorea tiliaefolia* Kunth Enum. 5 (1840) 401.

*Combilium* Rumph. Herb. Amb. 5: 357, *t. 126*.

This species is not represented in our Amboina collections. The figure, however, unmistakably represents the form commonly named *Dioscorea tiliaefolia* Kunth, but for which Prain and Burkill have recently adopted the name *Dioscorea aculeata* Linn. Sir David Prain, however, has discovered that *Dioscorea aculeata* Linn. is the valid name for *D. wallichii* Hook. f. and that *Oncus esculentus* Lour. supplies the oldest valid name for the species under discussion. Linnaeus originally reduced *Combilium* to *Dioscorea aculeata* Linn., in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1293. Mr. Burkill, who has called my attention to the necessary change in the specific name of this species, considers that *Combilium* is referable here with the possible exception of *Combilium rubrum*, the status of which is uncertain, and *C. tsjampadaha*, which is described as if a different species.

**DIOSCOREA PENTAPHYLLA** Linn. Sp. Pl. (1753) 1032.

*Ubium quinquefolium* Rumph. Herb. Amb. 5: 359, *t. 127*.

This species is not represented in our Amboina collections. The figure probably represents the var. *malaica* Prain & Burkill,

in Journ. As. Soc. Beng. II 10 (1914) 23. The original reduction of Rumphius's plant was made by Linnaeus, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1293, and has been accepted by most authors. The forms described as *album*, *rubrum*, and *fuscum* are probably but variants of the same species.

**DIOSCOREA HISPIDA** Dennst. Schlüssel Hort. Malabar. (1818) 33.

*Dioscorea hirsuta* Roth Nov. Pl. Sp. (1821) 370.

*Dioscorea daemona* Roxb. Hort. Beng. (1814) 72, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 805.

*Dioscorea triphylla* auctt., non Linn.

*Ubi* *silvestre* Rumph. Herb. Amb. 5: 361, t. 128.

*Colot e Philippinis* Rumph. l. c. 364.

AMBOINA, Waë, Robinson Pl. Rumph. Amb. 375, November 26, 1913, in light forests, altitude about 5 meters, locally known as *ondo*.

*Dioscorea triphylla* Linn., Sp. Pl. (1754) 1032, typified by Rheede, Hort. Malabar. 7: 63, t. 33, is merely a form of *Dioscorea pentaphylla* Linn. and must be considered as a synonym of that species. Prain and Burkill, however, propose to cite *Dioscorea triphylla* Linn. as published in Stickman, Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 131, thus typified by the Rumphian figure, and to retain *Dioscorea triphylla* Linn. as a valid species. This usage is inadmissible, and the specific name *triphylla* Linn. should be dropped. The oldest valid specific name appears to be *Dioscorea hispida* Dennst.

**DIOSCOREA NUMMULARIA** Lam. Encycl. 3 (1789) 231 (type!).

*Dioscorea nummularifolia* Henschel Vita Rumph. (1833) 183 (type!).

*Dioscorea glabra* Koord. Meded. Lands Plantent. 19 (1898) 312.

*Ubi* *nummularium frugiferum* Rumph. Herb. Amb. 5: 444, t. 162.

AMBOINA, Negri lama and Soja, Robinson Pl. Rumph. Amb. 374, September 8, 1913, in thickets and on hillsides, altitude 20 to 375 meters, locally known as *ubi utan*.

*Ubi* *nummularium* Rumph. was originally and erroneously reduced by Linnaeus to *Dioscorea villosa* Linn., in Stickman Herb. Amb. (1754) 24, Syst. ed. 10 (1759) 1294; but in Amoen. Acad. 4 (1759) 133, it was erroneously referred to *Smilax china* Linn. by confusion with the preceding plate. It is the whole basis of *Dioscorea nummularia* Lam., the Rumphian figure and description being the type of that species. "*Dioscorea nummularifolium* Linn." as quoted by Henschel does not exist and is a manifest error, the intention being *Dioscorea nummularia* Lam. The species is well known, being widely distributed in the Philippines and the Moluccas and extending to the southeast as far as New Guinea and Prince of Wales Island.



**DIOSCOREA** sp. aff. **D. NUMMULARIA** Lam.

*Ubiium nummularium floriferum* Rumph. Herb. Amb. 5: 445, t. 163.

This is not represented in our Amboina collections. Miquel, Fl. Ind. Bat. 3 (1858) 572, cites this plate with the preceding one under *Dioscorea nummularia* Lam. Hasskarl, Neue Schlüssel (1866) 144, cites the Rumphian name, but not the plate. The figure presents a plant with oblong-ovate, prominently acuminate, 5-nerved leaves, which are rounded at the base, in aspect somewhat resembling some forms placed under *Dioscorea nummularia* Lam., but with the stems *prominently spiny*. I have a single Philippine specimen, *Wenzel 1120* from Leyte, that Burkill has identified as a form of *Dioscorea nummularia* Lam., which has spiny stems, but otherwise all the material of typical *Dioscorea nummularia* Lam. that I have seen is entirely unarmed. In aspect the two forms figured by Rumphius are very distinct, but the differences may be more apparent than real. Possibly the differences in the presence or absence of spines on the stems may be due to the fact that the figure of *Ubiium nummularium frugiferum* presents only the upper part of the plant, while that of *Ubiium nummularium floriferum* presents also the lower part of the plant, the upper part being unarmed. Regarding this form Mr. Burkill writes as follows:

Figure 163 is unrecognizable. It may be a very badly drawn *Dioscorea* of the *D. nummularia* alliance. The type of the inflorescence, the opposite leaves, and the characters of the underground parts all permit of this view, in which case we need not suppose that the foliage is that of a *Stemona*, but that the artist was very careless in making the drawing. Indeed the foliage looks as if it were withered when the drawing was made.

**MUSACEAE****MUSA** Linnaeus**MUSA PARADISIACA** Linn. Sp. Pl. (1753) 1043.

*Musa domestica* Rumph. Herb. Amb. 5: 125, t. 60.

*Musa uranoscopos* Rumph. Herb. Amb. 5: 137, t. 61, f. 2.

*Musa alphurica* Rumph. Herb. Amb. 5: 138, t. 61, f. 3.

No attempt is here made to refer the numerous forms of the banana described by Rumphius to the various named varieties and forms of this species. Under *Musa domestica* Rumphius describes sixteen forms, four of which are figured; these for the most part are indicated by their native names. Rumphius described as distinct "species" *Musa uranoscopos* and *M. alphurica*, the former being reduced by Warburg to subsp. *troglodytarum* (Linn.) Baker, and the latter to subsp. *sapientum* (Linn.) O. Kuntze; *Musa troglodytarum* Linn., Sp. Pl. ed. 2 (1763)

1478, is typified by *Musa uranoscopos* Rumph. Herb. Amb. 5: 137, t. 61, f. 2. From data and material at present available no satisfactory arrangement of the various forms of the cultivated and semicultivated bananas is possible, and the definite characters of the numerous species, subspecies, varieties, and forms can be determined only by a critical study of ample living material. No bananas are represented in our Amboina collections.

**MUSA TEXTILIS** Née in Ann. Cienc. Nat. 4 (1801) 123.

*Musa silvestris mindanauensis* Rumph. Herb. Amb. 5: 139.

This was described from Mindanao and Sangir material and is manifestly a form of the abacá plant. It is certain that *Musa textilis* Née includes a number of distinct forms or varieties, and perhaps a critical study of living material will show that some of the forms are worthy of specific rank.

**MUSA TEXTILIS** Née var. **AMBOINENSIS** Warb. in Engl. Pflanzenreich 1 (1900) 19.

*Musa amboinensis* Miq. Fl. Ind. Bat. 3 (1858) 588 (type!).

*Musa silvestris amboinensis* Rumph. Herb. Amb. 5: 139.

The status of this Amboina form is uncertain, and it may prove to be specifically distinct from *Musa textilis* Née.

**MUSA ACUMINATA** Colla in Mém. Acad. Torin. 25 (1820) 338 (Mém. Gen. Musa 66).

*Musa rumphiana* Kurz in Journ. Agric. Hort. Soc. India II 5 (1878) 164.

*Musa simiarum* Miq. Fl. Ind. Bat. 3 (1858) 589.

*Musa simiarum* Rumph. Herb. Amb. 6: 138, t. 61, f. 1.

This sylvan species, briefly described by Rumphius, is probably a valid one, as considered by Warburg, in Engl. Pflanzenreich 1 (1900) 21, under the name *Musa acuminata* Colla. It has been referred by various authors to *Musa seminifera* Lour., *M. discolor* Horan., and *M. paradisiaca* Linn. var., but these reductions are certainly erroneous.

#### HELICONIA \* Linnaeus

(By TH. VALETON)

**HELICONIA BIHAI** Linn. Mant. 2 (1771) 211.

*Musa bihai* Linn. Sp. Pl. (1753) 1043.

*Heliconia buccinata* Roxb. Hort. Beng. (1814) 19 (type!).

*Heliconiopsis amboinensis* Miq. Fl. Ind. Bat. 3 (1858) 590.

*Folium mensarium album* Rumph. Herb. Amb. 5: 142, t. 62, f. 2 (sphalm. 1 in explic. p. 143).

This species, a native of tropical America, must have been

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\* Retained name, Vienna Code; *Bihai* Adans. (1763) is older.

introduced into Amboina at a comparatively early date, probably by the Portuguese colonists. In literature *Folium buccinatum*, figured on the same plate, is confused with *Folium mensarium*. The reduction to *Musa bihai* Linn. was made by Burman f., Fl. Ind. (1768) 218, and to *Heliconia bihai* Linn. by Linnaeus, Mant. 2 (1771) 211. The confusion between *Folium mensarium* and *Folium buccinatum* was apparently occasioned by Burman in writing the explanation of the plate, who reversed the names and figures. The latter is *Cominsia gigantea* (Scheff.) K. Sch. (see p. 167).

The status of all the forms described in this chapter is now rather clear. *Folium buccinatum asperum* Rumph., Herb. Amb. 5: t. 62, f. 1, is *Cominsia gigantea* (Scheff.) K. Sch.; the figure has been confused with fig. 2, *Heliconia bihai* Linn. *Folium mensarium nigrum* is, apparently, merely a variant of the preceding. *Folium mensarium rubrum* is a species of *Cominsia*, undescribed under the binomial system (see p. 168). *Folium buccinatum album* is *Phacelophrynium robinsonii* Val.

## ZINGIBERACEAE

(BY TH. VALETON)

### ZINGIBER Adanson

**ZINGIBER OFFICINALE** Rosc. in Trans. Linn. Soc. 7 (1807) 348.

*Amomum zingiber* Linn. Sp. Pl. (1753) 1.

*Zingiber majus album* Rumph. Herb. Amb. 5: 156, t. 66, f. 1.

Linnaeus made the first reduction of the Rumphian species to *Amomum zingiber* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, Sp. Pl. ed. 2 (1762) 1, which, as *Zingiber officinale* Rosc., is manifestly the correct disposition of it. The form described by Rumphius as *Zingiber majus rubrum* is probably merely a variant of the common ginger, *Zingiber officinale* Rosc.

**ZINGIBER OFFICINALE** Rosc. var. **MINOR** Val. var. nov.

*Zingiber minus sive gramineum* Rumph. Herb. Amb. 5: 161, t. 66, f. 2.

Dimensione minore et proprietatibus rhizomatis insignis. Floribus paullum majoribus, labello orbiculari, lobis lateralibus late rotundato-ovatis basi subcordatis a genuina distinguenda.

This variety is very commonly cultivated in western Java and occasionally produces flowers, although botanically it is quite unknown. It is easily identified by the native name *sunti*, mentioned by Rumphius and still in use, as well as by the

description. Blume was wide of the mark in reducing it to *Zingiber gramineum* Blume, Enum. Pl. Jav. (1827) 45. The latter is a rather common wild species of Java and Cochin-China and is never cultivated.

**ZINGIBER ZERUMBET** (Linn.) Smith Exot. Bot. 2 (1804) 103, t. 112.

*Amomum zerumbet* Linn. Sp. Pl. (1753) 1.

*Lampujum majus domesticum* Rumph. Herb. Amb. 5: 148, t. 64, f. 1.

AMBOINA, Toeelhoe, *Boerlage* 247 in herb. bog., July 16, 1900.

This reduction of *Lampujum majus domesticum* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, Syst. ed. 10 (1759) 842, Sp. Pl. ed. 2 (1762) 1, and is manifestly the correct disposition of it. Rumphius distinguished a cultivated and a wild form, but he found no difference between them, only that the latter flowered more abundantly. Blume did not think this was the genuine *Z. zerumbet* and reduced it to *Z. amaricans* Bl.; but his notions about true *Z. zerumbet* are not very clear, and specimens from Amboina (*Boerlage* 247) in the Buitenzorg herbarium seem to agree with the type. *Zingiber marginatum* (Roxb.?) Bl., which is quoted here by some authors, was based partly on *Lampujum silvestre minus* Rumph., Herb. Amb. 5: t. 64, which is *Globba marantina* L., partly on an abnormal form of *Z. zerumbet*, with a central inflorescence instead of a lateral one, occurring sometimes in Java.\* *Zingiber montanum* Link was based on *Amomum montanum* Koenig, in Retz. Obs. 3 (1779) 51, quoted here by Koenig, l. c., but Ridley, Fl. Mal. Penins. 2 (1907) 28, thinks it represents *Z. cassumunar* Roxb.

**ZINGIBER ZERUMBET** (L.) Smith. var. **AMERICANS** Val.

*Zingiber amaricans* Bl. Enum. Pl. Jav. (1827) 43.

*Lampujum minus* Rumph. Herb. Amb. 5: 148.

This reduction is based on Rumphius's assertion that this form was a native of Java, and thence brought to Amboina with the Malayan name *lampujum ketjil* or *wangi*. The latter is still very commonly used in Java for a form that is botanically not to be distinguished from *lampujum pait*, described by Blume as *Zingiber amaricans*. Blume's short description agrees wholly with the specimens I have examined.

**ZINGIBER CASSUMUNAR** Roxb. in As. Research. 11 (1810) 347, t. 5.

*Bangleum* Rumph. Herb. Amb. 5: 154, t. 65, f. 2.

This reduction of *Bangleum* was apparently first made by

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\* See van Zijp, Recueil Trav. Bot. Néerlandais 12 (1915) 346, t. 3.

Blume, Enum. Pl. Jav. (1827) 42, which is manifestly the correct disposition of it. The figure represents a sterile specimen only.

ALPINIA Linnaeus

ALPINIA GALANGA (Linn.) Sw. Obs. Bot. (1791) 8.

*Maranta galanga* Linn. Sp. Pl. ed. 2 (1763) 3 (type!).

*Galanga major* Rumph. Herb. Amb. 5: 143, t. 63.

This species is not represented in Robinson's collection. *Galanga major* Rumph. is the whole basis of *Maranta galanga* Linn., which typifies *Alpinia galanga* Sw.; the plate is very generally cited in botanical literature under *Alpinia galanga* (Linn.) Sw. All the specimens I have seen from Amboina and Celebes (*Boerlage*, *Teysmann*, *Riedel*, *Koorders*) differ from the cultivated form in having pubescent leaves and inflorescences. They probably represent the same form as the wild Javan one, *Alpinia pyramidata* Blume, considered by K. Schumann as a variety of *Alpinia galanga* Sw. *Galanga minor* Rumph., Herb. Amb. 5: 144, t. 63, d, may represent a different species.

ALPINIA GIGANTEA Blume Enum. Pl. Jav. (1827) 59, non aliorum.

*Alpinia eremochlamys* K. Sch. ex parte (specim. auth. in Herb. Bog.) in Engl. Pflanzenreich 20 (1904) 362, excl. descr. et fig. 40, 0, citatis.

*Globba silvestris minor* Rumph. Herb. Amb. 6: 141, excl. t. 63 citata (t. 62 et 63 ad *Alpinia nutans* spectant).

AMBOINA, Hoetoemoeri road, *Robinson Pl. Rumph. Amb. 141* (staminate), on a fern-covered hillside, altitude about 250 meters, the whole plant about 6 meters high, locally known as *geloba gardamu*; Soja, *Robinson Pl. Rumph. Amb. 143* (pistillate) on grassy slopes, altitude 375 meters, plant about 8 meters high. Collected also in Amboina by *Teysmann* at Hoetoemoeri, and by *Boerlage*, No. 407, at Latoea, the latter recording the local names *gardamoe oetan* and *anipa waccang*. The Celebes form mentioned by Rumphius is probably a related but distinct species.

K. Schumann, in Engl. Pflanzenreich 20 (1904) 355, regards the name *Alpinia gigantea* Blume as invalid on the basis: "nomen speciei mixtae melius deletur quam ulterius conservatur." Now Blume was wrong in referring *Globba silvestris major* to his species, but *Alpinia gigantea* Blume was based on a rather poor specimen and Reinwardt's manuscript, and hence it is not to be interpreted by the Rumphian synonym quoted by him. Robinson referred his No. 141 to the form figured by Rumphius, t. 62, as Blume did, yet considering it as *Globba silvestris minor*. It is improbable that Rumphius would have depicted a fruiting specimen when he professes that this kind never bears fruit, while the figures distinctly show the withered bracts, which

occur in *Alpinia nutans* and are very distinct in *t.* 63, *fig. B*, which I think is merely an almost life-sized branchlet of the form figured on the plate. According to Rumphius the racemes of *Globba silvestris minor* differ from *Globba silvestris major* in being longer, sterile, and without bracts, in all of which characters *Robinson 141* agrees; the specimen presents only staminate flowers, with no vestiges of a gynaeceum and no bracts. The specimen also agrees with *Alpinia gigantea* Blume in having very large pubescent leaves, so that Blume's species was not a "species mixta" at all and should be reinstated. The pistillate racemes of this plant, unknown to Rumphius, were also collected by *Robinson, No. 143*, who did not, however, recognize that this form belonged with the one represented by his *141*. In the Buitenzorg herbarium there are numerous specimens collected by *Boerlage* and by *Teyssmann* presenting both pistillate and staminate flowers.

**ALPINIA NUTANS** (Linn.) Rosc. in *Smith Exot. Bot.* 2 (1805) quoad syn. Linn., excl. *t.* 160 et descr. quae est *A. speciosa* K. Sch.

*Globba nutans* Linn. *Mant.* 2 (1771) 170 (type!).

*Alpinia papuana* K. Schum. in *Engl. Pflanzenreich* 20 (1904) 355, p. p., quoad specim. Moluccana.

*Alpinia moluccana* Gagnep. in *Bull. Soc. Bot. France* 48 (1902) 90.

*Alpinia eubractea* Val. (non K. Schum.) *Ic. Bogor.* 3 (1909) *t.* 300.

*Alpinia gigantea* Val. (non Blume) *Nova Guinea* 8 (1913) 943.

*Globba silvestris major* Rumph. *Herb. Amb.* 6: 140, *t.* 62, 63 (in explicatione tab., *t.* 63, sphalmate pro *Globba silvestris minor* distincta habetur).

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb.* 142, September 5, 1913, in forests, altitude about 275 meters, locally known as *geloba merah*. Also collected by *Teyssmann* in the same locality, and by *Boerlage* 83 p. p.

This species is widely distributed in the Eastern Archipelago and has been described under various names, but *Globba nutans* Linn., the name-bringing synonym of *Alpinia nutans* Rosc. was based wholly on *Globba silvestris major* Rumph., *Alpinia nutans* Rosc. thus being the oldest name for the species. The younger Linnaeus, *Suppl.* (1781) 79, followed by Giseke, *Prael. Ord. Nat. Pl.* (1792) 251, erroneously referred both of the Rumphian illustrations to *Renealmia exaltata* Linn. f., but the plant actually described under this name was from South America and is entirely different from the Moluccan one. By some authors, Murray, *Syst.* (1774) 67, and Richter, *Codex Bot. Linn.* (1840) 42, the figures are erroneously cited as *t.* 12 and *t.* 13, instead of *t.* 62 and *t.* 63. *Alpinia nutans* Rosc., as actually described and figured, is *Alpinia speciosa* (Wendl.) K. Schum. *Alpinia nutans* K. Schum., non Rosc. is *Alpinia oceanica* Burkill. *Al-*

*pinia moluccana* Gagnep. is exactly identical with *Alpinia nutans* as here interpreted. *Alpinia papuana* Scheff., in Ann. Jard. Bot. Buitenz. 1 (1876) 56 (type in Herb. Hort. Bog.), has a different calyx and much smaller flowers and inflorescences than the present species. *Alpinia eubractea* K. Sch. (non Val.) from Celebes (*Sarasin* 846), differs conspicuously in its long, narrow, truncate bracteoles.\* *Alpinia colossea* K. Schum. is the same as *A. papuana* Scheff. *Alpinia gigantea* Blume is definitely referred by K. Schumann to Scheffer's species, although at the same time he rebukes Blume for quoting Rumphius's *t. 62* instead of *t. 63* and for describing the leaves as pubescent instead of glabrous. Following K. Schumann's interpretation of Blume's species, I adopted the latter's specific name for the wrong species (Nova Guinea l. c.). If Blume had meant this species, he surely would have quoted *t. 63* and would also have mentioned the striking bracts (which are shown, but much less conspicuously, in *t. 62*), and he would have described the leaves as glabrous. Blume's description certainly applies to a different species; see above. As already noted, *Globba nutans* Linn. supplies the oldest specific name for this species, but which was rejected by K. Schumann because Linnaeus quoted both *t. 62* and *t. 63*, which he, K. Schumann, considered to represent distinct species; yet in this K. Schumann was wrong and Linnaeus was right, as both figures manifestly apply to but a single species.

**ALPINIA MALACCENSIS** Rosc. in Trans. Linn. Soc. 8 (1807) 330.

*Galanga malaccensis* Rumph. Herb. Amb. 5: 176, *t. 71, f. 1* (incl. *Bangle malacca*).

The Rumphian reference cited above was placed by Burman f., Fl. Ind. (1768) 2, under *Maranta malaccensis* Burm. f., which is the name-bringing synonym of *Alpinia malaccensis* Rosc. Roxburgh, Asiat. Res. 11 (1810) 353, referred to *Alpinia malaccensis* material from Chittagong, and his interpretation has been accepted by most authors. Blume, Enum. (1827) 59, without mention of Roxburgh's description, interpreted the common Javan form as Burman's species, and his reduction and diagnosis have been overlooked by all authors, including K. Schumann. Ridley, who collected the Javan form in Malacca denied that it is identical with Roxburgh's interpretation of *Alpinia malaccensis* and redescribed it as *Alpinia nobilis* Ridl., in Journ. Roy. As. Soc. Straits Branch 32 (1899) 169, without mention of *Alpinia malaccensis* Rosc. It seems to me more probable that Blume's interpretation of the Rumphian species is

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\* See K. Schumann in Engl. Pflanzenreich 20 (1904) *t. 41, f. A.*

the correct one as Rumphius states that the species occurred most commonly in Java and in Malacca; it is more probable that an Amboina species would also occur in Java than in Chittagong. The Rumphian description agrees equally well with both forms, and as this particular one has not been collected in Amboina since Rumphius's time, I cannot determine, with certainty, whether or not *Alpinia malaccensis* Rosc. is the same as *A. nobilis* Ridl. Roscoe's species will have to remain among those of uncertain status until Amboina specimens are available for study.

**ALPINIA UVIFORMIS** (Linn.) Horan. Monogr. (1862) 35 (type!).

*Globba uviformis* Linn. Mant. 2 (1771) 171 (type!).

*Globba uviformis* Rumph. Herb. Amb. 6: 138, t. 59, f. 2.

A species of doubtful status, known only from Rumphius's figure and description. K. Schumann places it in the section *Cylindrostachys*. However, it has every appearance of a *Plagiostachys*, and I suspect that it really belongs in this genus, not in *Alpinia*. The figure and the description are rather good. It differs from all known species of *Plagiostachys*, this genus extending from Malacca to Banka, Borneo, and the Philippines, in its much longer, white flowers and tomentose fruits. It is singular that this species, reported by Rumphius from Amboina and Celebes and stated by him to be so common in southern Celebes that the Buginese use it for thatching, has not been collected by any modern botanist or collector.

**ALPINIA** sp.

*Globba silvestris pada kanka* Rumph. Herb. Amb. 6: 142.

This was described from specimens from eastern Celebes, there known as *padakanka*. The characters indicated—terminal raceme, red flowers, and small globose fruits—point to *Alpinia*. Hasskarl thought that it might be near *Alpinia pyramidata* Blume.

#### RIEDELIA Oliver

**RIEDELIA LANATA** (Scheff.) K. Schum. msc. in Herb. Bog.; Valetton in Ic. Bogor. 4 (1913) t. 373, Nova Guinea 8: 961.

*Hedychium lanatum* Scheff. in Ann. Jard. Bot. Buitenz. 1 (1876) 57.

*Riedelia curviflora* Oliv. in Hook. Ic. Pl. 15 (1883) t. 1419; K. Sch. in Engl. Pflanzenreich 20 (1904) 374 p. p.

*Thylacophora pogonocheilus* Ridl. in Trans. Linn. Soc. Bot. 9 (1916) 210, t. 5, f. 74, t. 6, f. 75-82.

? *Globba lawassi* Malacca Rumph. Herb. Amb. 6: 139.

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb. 543*, in light forests, altitude about 35 meters, locally known as *globba baubau*.

This species has not been previously collected in Amboina,



although it is well known in Boeroe (*Riedel, Teysmann*) and occurs in New Guinea (*Teyssmann, Versteeg*). I reduce to it *Globba lawassi* Malacca of Rumphius, because the fruits agree with Rumphius's description, while the seeds have a marked flavor of cardamon.

**AMOMUM** sensu Benthamiano \*

**AMOMUM CARDAMOMUM** Willd. (not Linn. which is *Elettaria cardamomum*) Sp. Pl. 1 (1797) 8; Roxb. Pl. Coromandel 3: 22, t. 227, Fl. Ind. ed. 2, 1 (1832) 37; K. Schum. in Engl. Pflanzenreich 20 (1904) 238 (*Amomum cardamon*).

*Cardamomum minus* Rumph. Herb. Amb. 5: 152, t. 65, f. 1.

This was reduced by Linnaeus to *Amomum cardamomum* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, but is entirely different from the Linnean species as originally published in 1753, which is *Elettaria cardamomum* Maton. It is not represented by botanical specimens from Amboina, but occurs in Java, cultivated and spontaneous, and in Sumatra.

In the same chapter Rumphius briefly mentions two other species, the fruits of which were considered as kinds of cardamon. He distinguishes in all three kinds of cardamon, none of which is a native of Amboina, as follows:

*Cardamom majus* "the round Cardamom of Java."

This is, according to Pereira, who compared fruits known by this name with authentic specimens in Kew, doubtless *Amomum maximum* Roxb. Fl. Ind. 1 (1820) 41, a native of Java [Pereira *Materia medica* 2 (1849) 106].

*Cardamom medium sive minus* = *Amomum cardamomum* Willd.

This is the only one that was cultivated, though with little success, in Amboina.

*Cardamom verum fructibus minimis trigonis* = *Elettaria cardamomum* Maton.

**AMOMUM ROSEUM** (Teyssm. & Binn.) Benth. & Hook. f. ex Jackson Index Kewensis (1895) 108, non Roxb.

*Donacodes rosea* Teyssm. & Binn. Cat. Hort. Bogor. (1866) 58.

*Amomum truncatum* Gagnep. in Bull. Soc. Bot. Fr. 51 (1903) 164.

*Globba crispa* II *rubra* Rumph. Herb. Amb. 6: 137, t. 60, f. B, C, D, t. 61, f. 2.

AMBOINA, Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 140, August 23, 1913, locally known as *gelobba*; *Teyssmann. CELEBES, Koorders 592c, 19651B*.

Loureiro, Fl. Cochinch. (1790) 4, referred this to *Amomum villosum* Lour., that is, *Globba crispa* Rumph. t. 61, but mani-

\* This genus in its widest sense contains species placed by different authors under *Elettaria*, *Geanthus*, *Donacodes*, *Phaeomeria*, *Hornstedtia*, and *Amomum*.

festly the Amboina plant is entirely different from the Cochinchina one that Loureiro described. In this reduction Loureiro was followed by numerous authors. Hasskarl, *Neue Schlüssel* (1866) 174, thought that it might be *Amomum aculeatum* Roxb., which can scarcely be the correct disposition of it. *Donacodes rosea* Teysm. & Binn. was based on Amboina specimens, and our material agrees closely with the figure given by K. Schumann in Engler's *Pflanzenreich* 20 (1904) 230. The Celebes specimens described by Gagnepain as *Amomum truncatum* Gagnep. are certainly conspecific with the Amboina ones, although they have glabrous leaves, while the Amboina specimens have long-ciliate leaves.

**AMOMUM ACRE** Val. sp. nov.

*Globba acris* Rumph. Herb. Amb. 6: 140.

Folia? Flores? Ovarium ellipticum sericeum sublaeve. Inflorescentia fructifera racemosa simplex elongata densiflora. Rachis valida 10 ad 12 mm crassa. Bracteae persistentes coriaceae oblongae versus basin attenuatae, inferiores 30 ad 35 mm longae 8 ad 10 mm latae valde scariosae versus apicem racemi sensim minores. Bracteolae binae approximatae prope basin pedicelli intervallo brevi insertae ovatae acutae concavae dorso leviter carinatae, valde coriaceae sericeo-tomentosae, 12 ad 15 mm longae 6 ad 8 latae. Pedicelli validi 15 ad 20 mm longi, 2 ad 3 mm crassi bracteis breviores, sericei. Fructus late ellipsoidei (30×20 mm) utrinque attenuati, apice breviter rostrati et in calycem coriaceum persistentem ad basin usque trifidum, segmentis 10 ad 15 mm longis apice spinulosis, excurrentes, pericarpio carnosocoriaceo spinis compressis e basi lata acute trigonis 1 ad 2 mm altis, verticaliter subseriatis haud densis obsesso, triloculares septis tenuibus seminibus numerosis arillatis conglutinatis.

This species is very closely allied to *Amomum roseum* (T. & B.) Benth. & Hook. f. (see p. 157). The infructescence of the latter resembles very much that of *Amomum acre*, but is smaller in all parts except the bracts, which are longer, not scariosae, and end in a spinous point. Also the spines of the fruit are much denser near the apex of the fruit. This species is represented in the Buitenzorg herbarium by fruiting specimens from Macassar, Celebes, where the plant still bears the Malay name *panas*, as cited by Rumphius. It seems to be near *Amomum roseum* Benth. & Hook. f. Hasskarl, *Neue Schlüssel* (1866) 175, thought that it might be *Amomum uliginosum* Koenig; this is manifestly an erroneous reduction of it.

- ? **AMOMUM ACULEATUM** Roxb. *Asiat. Research.* 11 (1810) 344, *t.* 6;  
Blume *Enum. Pl. Jav.* (1827) 50; K. Sch. in *Engl. Pflanzenreich*  
20 (1904) 240.

*Amomum hatuanum* Naves *Novis. App. Fl. Filip.* (1880) 224 (type!).

- ? *Globba hatuana* Rumph. *Herb. Amb.* 6: 138.

*Amomum aculeatum* Roxb. is common in Java, where it grows both wild and cultivated, and I think that it occurs in various forms or varieties throughout the Eastern Archipelago. Among the Papuan forms, which I have described as varieties of this species, *Amomum gymnocarpum* Val., *Nova Guinea* 8: 926, apparently agrees with Rumphius's description. Rumphius's description is the whole basis of *Amomum hatuanum* Naves, a name not listed in *Index Kewensis*.

*Globba longa minor* Rumph., *Herb. Amb.* 6: 136, a native of Java, is probably *Hornstedtia minor* (Blume) K. Sch. (*Elettaria minor* Blume).

- ? **AMOMUM MAGNIFICUM** (Rosc.) Benth. & Hook. *f. Gen. Pl.* 3 (1883) 644.

*Alpinia magnifica* Rosc. *Monandr. Pl.* (1828) *t.* 75.

*Phaeomeria magnifica* Lindl. *Introd. Nat. Syst.* ed. 2 (1835) 466.

*Nicolaia imperialis* Horan. *Monogr.* (1862) 32, *t.* 1.

*Hornstedtia imperialis* Ridl. in *Journ. Roy. As. Soc. Str. Branch* 32 (1899) 148.

*Nicolaia magnifica* K. Schum. in *Engl. Bot. Jahrb.* 27 (1899) 303;  
Val. in *Bull. Inst. Bot. Buitenz.* 20 (1904) 35.

*Globba silvestris sulica* Rumph. *Herb. Amb.* 6: 141.

Rumphius's description applies unmistakably to *Nicolaia*, and Hasskarl, *Neue Schlüssel* (1866) 175, considered it to be *Nicolaia speciosa* Horan. or an allied species. I have placed it under *Amomum magnificum* with doubt, because I suppose the Celebes specimens collected by Sarasin, cited by K. Schumann under *Nicolaia magnifica* K. Schum., to represent Rumphius's species, which was from Celebes. Whether the form Rumphius described is *Nicolaia magnifica* K. Schum., *N. hemisphaerica* Horan., or *N. speciosa* Horan., I do not venture definitely to decide. I consider *N. speciosa* Horan. to be distinct from *N. magnifica* K. Schum. on account of the color of the labellum.

- AMOMUM RUMPHII** Smith in *Rees Cyclop.* 39 (1819) no. 15 (type!).

*Elettaria musacea* Horan. *Monogr.* (1862) 31 (type!).

*Donacodes incarnata* T. & B. *Cat. Hort. Bogor.* (1866) 380.

*Hornstedtia elongata* K. Schum. in *Engl. Pflanzenreich* 20 (1904) 192 p. p. excl. descriptione, quae refert partim ad *Amomum maximum* Bl., partim ad *Hornstedtia* spec. incertam.

*Globba longa s. vulgaris* Rumph. *Herb. Amb.* 6: 134, *t.* 60.

AMBOINA, Hatiwe and Batoe gadjah, *Robinson Pl. Rumph. Amb.* 144,

August and September, 1913, on wooded hillsides and river banks, altitude 20 to 250 meters; *Teysmann*. Cultivated in the botanic garden at Buitenzorg, from Amboina, under the native name *geloba*.

A critical examination of two authentic specimens in the Buitenzorg herbarium labelled by K. Schumann "Bearbeitet für das Pflanzenreich," both from plants cultivated in the botanic garden, shows them to be different from each other. One of them is wrongly labelled "*Donacodes minor*" and is apparently *D. elongata* T. & B. The other is the type specimen of *D. incarnata* T. & B., a native of Amboina; this is identical with Robinson's Amboina material and is easily distinguished from *D. elongata* T. & B. by its densely tomentose ligule. *Donacodes elongata* T. & B. and *D. incarnata* T. & B. are *nomina nuda*, and the latter is apparently identical with *Globba longa* Rumph. Older names are *Amomum rumphii* Smith and *Elettaria musacea* Horan., both based on Rumphius. K. Schumann was wrong in referring *Globba longa* Rumph. to *Amomum roseum* (T. & B.) Benth. & Hook. f.

#### AMOMUM sp.

*Globba crispa* l *viridis* Rumph. Herb. Amb. 6: 137, t. 61, f. 1.

This Rumphian species has not been located, yet the description and figure are so good that it could not readily be overlooked had a plant presenting its characters appeared in modern collections from the Moluccas. Willdenow, Sp. Pl. 1 (1797) 8, after Koenig, placed the Rumphian species as a synonym of *Amomum echinatum* Willd. Willdenow's species was based on Koenig's *Amomum* 2 or *Globba crispa*, a native of Malacca; the latter has tubercled, not aculeate, fruits and a filiform rhizome and differs totally from *Globba crispa* Rumph. *Amomum echinatum* Baker, of Ceylon, described also by Trimen under this name, is still another quite different species, with copious curved spines. Loureiro, Fl. Cochinch. (1790) 4, referred *Globba crispa* Rumph. to *Amomum villosum* Lour., where it manifestly does not belong.

#### AMOMUM sp.

*Globba silvestris subterranea* Rumph. Herb. Amb. 6: 142.

*Amomum hochreutineri* Val., a species with white subterranean fruits, as described by Rumphius, occurs in the mountains of western Java. It is allied to *Amomum hypoleucum* Thw. and like the latter is characterized by the silvery lower surface of the leaves; it is assumed that Rumphius would have mentioned this character had he intended this species. Hasskarl thought that it might be near *Amomum gracile* Blume.

## AMOMUM sp.?

Globba sekala Rumph. Herb. Amb. 6: 141.

This herb, a native of the eastern coast of Celebes, is said to resemble *Alpinia gigantea* in habit, but to be smaller and with reddish flowers issuing from the rhizome as in *Amomum roseum*. The species has not been found again so far as can be ascertained. It might be *Alpinia melichroa* K. Schum., in Engl. Pflanzenr. 20 (1904) 364, collected by Sarasin (No. 871) in Celebes. Nothing definite can be stated regarding its proper position.

## HEDYCHIUM Koenig

HEDYCHIUM CHRYSOLEUCUM Hook. f. in Curtis's Bot. Mag. 76 (1850) t. 4516; K. Schum. in Engl. Pflanzenreich 20 (1904) 46.

Gandasulium Rumph. Herb. Amb. 5: 175, t. 69, f. 3.

AMBOINA, Robinson Pl. Rumph. Amb. 145, August, September, and October, 1913, from cultivated plants, locally known as *gandasuli*.

*Gandasulium* Rumph. was reduced by Koenig to *Hedychium coronarium* Koenig in the original description of that species, and this disposition of it has been accepted by all subsequent authors. It is not certain, however, that *Gandasulium* Rumph. is identical with *Hedychium coronarium* Koenig, which was based on Malacca specimens. Koenig's original description is not sufficiently detailed to show its exact status. If the Amboina material cited above really represents *Gandasulium* Rumph., as I suppose it does, it is certainly not the same as *Hedychium coronarium* as considered by Roscoe, Monandr. Pl. t. 51, and by K. Schumann, in Engl. Pflanzenreich 20 (1904) 44. It seems to me to agree perfectly with the figure of *Hedychium chrysoleucum* Hook. f. quoted above, the drawing having been made from specimens sent by Roxburgh; it is not impossible that Roxburgh's plants came originally from Amboina, although it seems not to be a native of Amboina. It occurs in Java only as a cultivated plant.

## KAEMPFERIA Linnaeus

KAEMPFERIA GALANGA Linn. Sp. Pl. (1753) 2.

Soncorus Rumph. Herb. Amb. 5: 173, t. 69, f. 2.

Not represented in our Amboina collections. Linnaeus originally reduced *Soncorus* Rumph. to *Kaempferia galanga* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, Syst. ed. 10 (1759) 843, Sp. Pl. ed. 2 (1762) 3, which is

apparently the correct disposition of it and one that has been accepted by all authors.

**KAEMPFERIA PANDURATA** Roxb. in As. Research. 11 (1810) 328, t. 2.  
*Gastrochilus panduratum* Ridl. in Journ. As. Soc. Str. Branch 32 (1899) 114.

*Zerumbed claviculatum* Rumph. Herb. Amb. 5: 172, t. 69, f. 1.

Linnaeus originally reduced *Zerumbed claviculatum* Rumph. to *Kaempferia rotunda* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, which is manifestly an erroneous disposition of it. Roxburgh, Fl. Ind. 1 (1820) 18, placed it under *Kaempferia pandurata* Roxb., which was described from Sumatran specimens. This reduction has been accepted by Roemer and Schultes, Blume, Dietrich, Miquel, and Horaninow and is apparently the correct disposition of it.

#### GLOBBA Linnaeus

**GLOBBA MARANTINA** Linn. Mant. 2 (1771) 170.

*Lampujum silvestre minus* Rumph. Herb. Amb. 5: 150, t. 64, f. 2.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb. 145*, August, 1913, along roadsides and on banks, altitude 5 to 400 meters, locally known as *kuning utan*.

Rumphius's figure is a very poor one, but it is certainly referable to *Globba marantina* Linn. This reduction seems first to have been made by Roemer and Schultes, Syst. Mant. 1 (1822) 46.

#### CURCUMA Willdenow

Rumphius described, in all, nine forms of *Curcuma*, of which he declares that the first three, considered in chapter sixteen, belong to the true *Curcuma*. In the following chapter he deals with a group of species, which he considered under the "generic" name *Zerumbed*, on account of the assertions of the natives, who deliberately distinguish these forms from the true *Curcuma*, or *koenjit*, uniting them under a proper group name, *tommon*. Rumphius confessed, however, that he himself was not able to find characters by which the two groups could be distinguished. However, if one compares the native names cited by Rumphius for the six species mentioned under *Zerumbed*, with those now used in Java, one is impressed by the fact that, with a single exception, all of them are applied to species belonging in the section *Exantha*; while the three species placed by Rumphius under the name *Curcuma*, all belong in the section *Mesantha*. The clue to Rumphius's enigma apparently lies in the fact that

he had not seen the flowers of most of the species, and hence did not know of the peculiar distinguishing character of the inflorescence. This may also explain why *t. 68* was placed under *Zerumbed*, rather than under *Curcuma*, where it really belongs.

Of the six species enumerated in chapter seventeen, under *Zerumbed*, the first and second are discussed below; the third (*album*), fourth (*giring*), and sixth (*manga*), all cultivated in Java, are still undescribed under the binomial system; while the fifth (*frigidum*), as regards the name *ties*, but not the description, belongs to *Curcuma viridiflora* Roxb. Fl. Ind. 1 (1820) 34, a species of the section *Mesantha*. Roxburgh himself reduced the fourth species to *Curcuma viridiflora* Roxb., but that was evidently an error on his part.

**CURCUMA LONGA** (non Linn. quae est prob. *C. aromatica* Salisb., vide Hermann Hort. Acat. Lugd. Bot. Descr. (1687) 208, *t. 209*) Koenig in Retz. Obs. 3 (1783) 72, non aliorum.

*Curcuma domestica minor* (et major?) Rumph. Herb. Amb. 5: 164, *t. 67*.

Rumphius's description agrees exactly with our commonly cultivated curry plant, as do the Malay names cited by him, and the form that he described and figured is apparently identical with that described by Koenig as *Curcuma longa*. It is characterized by its central spike, white bracts, and orange rhizomes. In Java a tall form and a short form occur, but I cannot detect any notable differences between them. *Curcuma longa* Linn., Sp. Pl. (1753) 2, was based wholly on *Curcuma radice longa* Herm., which probably is the same as *Curcuma aromatica* Salisb. Linnaeus, however, reduced the Rumphian species, as figured, to *Curcuma longa* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, Syst. ed. 10 (1759) 843; while in the second edition of the Species Plantarum (1762) 3, he erroneously referred it to *Curcuma rotunda* Linn., which is supposed to be the same as *Kaempferia pandurata* Roxb.

**CURCUMA PETIOLATA** Roxb. Fl. Ind. 1 (1820) 37, sensu latissimo K. Schum. in Engl. Pflanzenreich 20 (1904) 102.

*Curcuma agrestis* Rumph. Herb. Amb. 5: 164.

This species, in the wide sense that it was interpreted by K. Schumann, was until recently known only from Pegu and Moulmein, but has been detected growing also in Java. Rumphius's description agrees so closely with that of Roxburgh, that I do not hesitate in reducing *Curcuma agrestis* Rumph. to *C. petiolata* Roxb.

**CURCUMA ZEDOARIA** (Berg.) Rosc. Monandr. Pl. (1828) t. 109.

*Amomum zedoaria* Berg. Mat. Med. (1788) 41.

*Zerumbed majus* Rumph. Herb. Amb. 5: 168, excl. t. 68 citata (quae prob. ad *C. viridifloram* Roxb. pertinet).

*Zerumbed* of Rumphius was first placed by Linnaeus under *Curcuma rotunda* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, Syst. ed. 10 (1759) 842, but is manifestly *Curcuma zedoaria* Rosc., where it was placed by Willdenow, with doubt (sub *Amomum zedoaria* Berg.), and by Roemer and Schultes. It has, by various authors, been placed under *Costus arabicus* Linn., *Amomum latifolium* Lam., *Amomum zerumbeth* Koenig, *Renealmia exaltata* Linn., and *Curcuma zerumbet* Roxb.

**CURCUMA AERUGINOSA** Roxb. Fl. Ind. 1 (1820) 27; Rosc. Monandr. Pl. (1828) t. 106.

*Zerumbed nigrum* Rumph. Herb. Amb. 5: 169.

This form occurs in Java, cultivated and wild, and, according to Roxburgh, in Burma. Roxburgh placed *Zerumbed nigrum* Rumph. under *Curcuma caesia* Roxb., but the Javan plant, which is certainly the same as the one that Rumphius described, agrees better with *Curcuma aeruginosa* Roxb.

#### COSTUS Linnaeus

**COSTUS SPECIOSUS** (non Smith) Blume Enum. (1827) 61, non *Banksia speciosa* Koenig.

*Costus speciosus* var. *glabra* K. Sch. in Engl. Pflanzenreich 20 (1904) 398.

*Herba spiralis* II *laevis* Rumph. Herb. Amb. 6: 143, t. 64, f. 2.

AMBOINA, Soja, Robinson Pl. Rumph. Amb. 147, August 14, 1913, in forests, altitude about 400 meters, flowers white, fruit red.

**COSTUS SPECIOSUS** Blume var. **HIRSUTUS** Blume Enum. (1827) 61; Val. in Nova Guinea 8: 982.

*Costus speciosus* var. *lasiocalyx* K. Sch. in Engl. Pflanzenreich 20 (1904) 398.

*Costus speciosus* var. *argyrophyllus* Ridl. in Herb. Kds., non Ridl. in Mat. Fl. Mal. Pen. 2 (1907) 24, which is *C. sericea* Blume.

*Herba spiralis* I *hirsuta* Rumph. Herb. Amb. 6: 143, t. 164, f. 1.

This has been collected in Amboina by Boerlage and is known from Java, Celebes, Key, and New Guinea. Koenig originally reduced *Herba spiralis* Rumph. to *Costus speciosus* Sm., in which he has been rather uncritically followed by all recent authors. The Malacca form, typical *Costus speciosus* Sm., which is commonly cultivated in Batavia, but which is not wild in the Archi-



pelago, has flowers four times as large as the Javan and Amboina forms, which again differ from each other. Besides *Costus speciosus* I think there are two other known species common in the Malayan region. One is *Costus sericeus* Blume (*argyrophyllus* Ridl.), the other the form represented by Rumphius's figure, which will probably need a distinctive specific name.

#### TAPEINCHILUS Miquel

**TAPEINCHILUS ANANASSAE** (Hassk.) K. Schum. in Engl. Bot. Jahrb. 27 (1899) 349; Engl. Pflanzenreich 20 (1904) 436.

*Costus ? ananassae* Hassk. in Abhandl. Naturf. Gesellsch. Halle 9 (1866) 335 (Neue Schlüssel 191) (type!).

*Tapeinochilus pungens* Miq. in Ann. Mus. Bot. Lugd. Bat. 4 (1868-69) 101, t. 4.

*Tubu tubu* Rumph. Herb. Amb. 7: 52, t. 22, f. 2.

The original description of the species proposed by Hasskarl was based entirely on Rumphius. The species was not published by Hasskarl under *Tapeinochilus* as indicated by K. Schumann, but under *Costus*. Neither of the names appears in Index Kewensis or in its supplements to date.

### CANNACEAE

#### CANNA Linnaeus

**CANNA INDICA** Linn. Sp. Pl. (1753) 1.

*Cannacorus* Rumph. Herb. Amb. 5: 177, t. 71, f. 2.

AMBOINA, Roemah tiga and about the town of Amboina, *Robinson Pl. Rumph. Amb. 410*, August 15, 1913, along river banks, in sago swamps, etc., locally known as *tasibe mera*.

This is the common, spontaneous, Indo-Malayan form with small red flowers that is generally placed under *Canna indica* Linn. As noted by Kränzlin, in Engl. Pflanzenreich 56 (1912) 59, it is very difficult to determine the exact status of *Canna indica*, as described by Linnaeus. The Linnean species, as here interpreted, is apparently not the form described by Kränzlin. *Cannacorus* was originally reduced by Linnaeus to *Canna angustifolia* Linn., in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 842, which is certainly an error; in the second edition of his Species Plantarum (1762) 1, however, he placed *Cannacorus* under *Canna indica* Linn., which seems to be the correct disposition of it. By other authors it has been placed under *Canna patens* Rosc., *C. orientalis* Rosc., and *C. coccinea* Ait.

## MARANTACEAE

(By TH. VALETON)

## DONAX Loureiro

**DONAX CANNIFORMIS** (Forst.) K. Schum. in Engl. Bot. Jahrb. 15 (1893) 440; Rolfe in Journ. Bot. 45 (1907) 243.

*Thalia cannaeformis* Forst. Prodr. (1786) 1.

*Actoplanes canniformis* K. Schum. in Engl. Pflanzenreich 11 (1902) 34 p. p., excl. syn. *Maranta grandis* Miq. quae est *A. ridleyi* K. Schum.

*Arundastrum* Rumph. Herb. Amb. 4: 22, t. 7.

AMBOINA, Soja and Way tommo, *Robinson Pl. Rumph. Amb. 520*, August, 1913, along river banks and in forests, altitude 45 to 400 meters; between Waë and Toelehoe and at Laha, *Boerlage 191, 516*, in Herb. Bog.

*Arundastrum* Rumph. was originally reduced to *Maranta arundinacea* Linn., as a variety, by Lamarck, *Encycl. 2* (1788) 588, where it manifestly does not belong. Loureiro, *Fl. Cochinch. (1790) 11*, placed it under *Donax arundastrum* Lour., which is a species of *Donax* distinct from *D. canniformis* K. Schum. By Willdenow, *Sp. Pl. 1* (1797) 13, it was erroneously placed under the American *Maranta tonckat* Aubl. = *Stromanthe tonckat* Eichl. Roxburgh, *Fl. Ind. ed. 2, 1* (1832) 2, placed it under *Phrynium dichotomum* Roxb., which is *Schumannianthus dichotomus* Gagnep.; and Dietrich placed it under *Maranta dichotoma* Wall., a synonym of the latter species. The synonymy of *Donax canniformis* K. Schum. and of the several species in the allied genus *Schumannianthus* is very complicated, but has been admirably cleared up by Rolfe in *Journ. Bot. 45* (1907) 242-244.

## PHACELOPHRYNIUM K. Schumann

**PHACELOPHRYNIUM ROBINSONII** Val. sp. nov.

*Folium buccinatum album* Rumph. Herb. Amb. 5: 142.

AMBOINA, Mahija, *Robinson Pl. Rumph. Amb. 521* (type), August 7, 1913, along small streams, altitude about 250 meters, locally known as *dauri*; Waigama, *Teysmann sine numero* in Herb. Bog. (specim. fructif.).

Herba bimetralis. Caulis florifer 150 ad 450 mm longus. Folia longissime petiolata (pet. propr. 100 mm, vagina fere 1,200 mm), maxima late oblonga vel elliptica (lamina 400×250, vel 470×240, vel 500×170 mm) apice attenuata vel subrotundata breviter (10 mm) apiculata, basi vulgo rotundata ad petiolum constricta acuta, glaberrima. Inflorescentiae pedunculo 100 ad 200 mm longo, rhachi glabra, singulae foliis 1 ad 2 comitatae subsimplices, haud interruptae, ramis paucis (2 ad 4) e bracteis inferioribus exortis erectis, spicae primariae breviores, internodia inferiora 30 ad 65 mm longa, superiora breviora

(5 ad 16 mm), bracteis spicularum densis plus minus occulta. Bracteae primariae 45 ad 25 mm longae, oblongae mucronatae superiores minores acutae ad 20 mm longae apice et basi minute puberulae, erectae. Florum paria 2 vel 3 bracteolis teneris paucis. Fl. brevipedicellati ad 25 mm longi. Ovarium teres (3 mm) appresse villosum, triloculare, triovulatum. Sepala anguste lanceolata apice acuta incurva 7 mm longa. Floris tubus gracilis elongatus (16 mm longus), petala lineari-oblonga genitalia superantia circ. medio tubo inserta  $\pm 10$  ad 12 mm longa. Staminodium exterius singulum valde elongatum lineare 7 mm longum, 1.5 mm latum, labellum (std. callosum) elongatum ellipticum apice dilatatum emarginatum valde concavum, callo superne tenui glabro, lobulo basali velutino ( $\pm 6$  mm longum). Cucullum multo brevius, appendicula haud magna, basi auriculata munitum, stamen fertile subfiliforme, loculo petaloideo angusto inconspicuo 4 mm longum. Caryopsis parva (10 mm longa, 5 mm lata) teres oblonga apice rotundata et calyce coronata, uni latere concava, pericarpio tenui stramineo appresse hirsuto, abortu nunc unilocularis indehiscens, monospermus (teste Rumphius dispermus). Semen teres apice acutum, basi arillo magno nigro bipartito lobis magnis attenuatis instructum. Embryo leviter curvatum.

Doctor Robinson's hypothesis that the specimen of his collection, cited above, represented *Folium buccinatum album* Rumph. was a very ingenious one. Rumphius's description tallies so exactly with the specimens that it would be impossible to find another species that better agrees with it. It is a very fine new species of *Phacelophrynium*, differing from the generic diagnosis in its 1- or 2-celled nuts (instead of 3-celled 3-valved capsules) and its long corolla-tube. There is, however, only one exterior staminode, and this character together with the whole habit of the species, which closely resembles *Phacelophrynium interruptum* K. Schum., induces me to place it in *Phacelophrynium* rather than to propose for it a new generic name. The fruit is rather remarkable and is to be compared only with that of *Halopegia* K. Schumann.

## COMINSIA Hemsley

COMINSIA GIGANTEA (Scheff.) K. Sch. in Engl. Pflanzenreich 11 (1902) 58, f. 10.

*Phrynium giganteum* Scheff. in Ann. Jard. Bot. Buitenz. 1 (1876) 58.

*Folium buccinatum asperum* Rumph. Herb. Amb. 5: 142, t. 62, f. 1 (sphalm. 2).

Not represented in Robinson's Amboina collections, but col-

lected in Amboina by *Boerlage* and known from Halmaheira, New Guinea, Bismarck Archipelago, and the Solomon Islands. Rumphius's description and figure unmistakably refer to *Cominsia gigantea* K. Sch. Burman f. erred in referring fig. 2, of plate 62 to *Folium buccinatum asperum* Rumph. in the explanation of the plate; it is *Folium buccinatum* Rumph. = *Heliconia bihai* Linn., as the description shows. Horaninow thought it might be a *Phrynium*, and Teysmann, quoted by Hasskarl, thought that it might be a *Hellenia* (= *Alpinia*); see *Heliconia bihai* Linn., page 150.

**COMINSIA RUBRA** Val. sp. nov.

*Folium mensarium rubrum s. latifolium* Rumph. Herb. Amb. 5: 141.

Herba multicaulis, caulibus complanatis e vaginis 4 compositis. Folia magna late elliptica (*Heliconia Bihai* referentia), antice rotundata acumine convoluto, valde inaequilatera, 600 ad 900 mm longa 180 ad 250 mm lata consistentia firma, haud ad latera findentia, supra in vivo glauco-viridia subtus pallide fusca vel violacea. Nervi laterales circ. 12 ad 15 mm inter se remoti. Petioli ad 750 mm longi basi cum ligula pubescentes. Herba florens ad 2.5 metr. alta, 15 mm crassa, pilis bulbillosis densis scabra, foliis 2, 1,200 mm longis 400 mm latis. Panicula magna terminalis ad 400 mm longa ramosissima rachi laxe pubescente, valde densiflora, internodiis denudatis, inferioribus ad 45 mm, superioribus  $\pm 10$  mm longis. Bractee vaginantes 35 ad 45 mm longae glabrae. Flores ignoti.

The description is from specimens in the Buitenzorg herbarium, collected in Amboina by *Botter*, and bearing the native name *kokin merah*, which is also cited by Rumphius. It is certainly a species of *Cominsia*, well characterized by the scabrid sheaths. It is distinguished by the much denser, pubescent inflorescence and by the wider leaves, which are purple beneath.

**ORCHIDACEAE \***

(By J. J. SMITH)

**PLATANThERA** L. C. Richard

**PLATANThERA SUSANNAE** (Linn.) Lindl. Gen. et Sp. Orch. (1835) 295.  
*Orchis susannae* Linn. Sp. Pl. (1753) 939.

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\* All specimens of *Orchidaceae* collected by Doctor Robinson in Amboina were sent me at Leiden. Owing to the abnormal conditions brought about by the European war, I considered it inadvisable to take the specimens with me on my return to Buitenzorg, so that it has been impracticable to cite the numbers collected by Doctor Robinson in this consideration of the *Orchidaceae* described by Rumphius. [J. J. S.]. For citations of Robinson's specimens of *Orchidaceae*, see Addenda, p. 548. [E. D. M.]

- Orchis gigantea* Sm. Exot. Bot. 2 (1804-05) 79, t. 100.  
*Habenaria gigantea* Don Prodr. (1825) 24.  
*Habenaria susannae* R. Br. Prodr. (1810) 312.  
*Platanthera gigantea* Lindl. in Wall. Cat. (1832) no. 7052.  
*Flos susannae* Rumph. Herb. Amb. 5: 286, t. 99.

I have no doubt that *Flos susannae minor* Rumph. belongs with *Habenaria rumphii* Lindl.

PERISTYLUS Blume

PERISTYLUS sp.

*Orchis amboinica minor altera* Rumph. Herb. Amb. 6: 118, t. 44, f. 3.

The plant figured by Rumphius is certainly a *Peristylus*. I do not know any species like it from Amboina.

HABENARIA Willdenow

- HABENARIA RUMPHII (Brongn.) Lindl. Gen. et Sp. Orch. (1835) 320.  
*Platanthera rumphii* Brongn. Bot. Duperrey Voy. (1829) 104, t. 38, f. A.  
*Orchis amboinica minor* Rumph. Herb. Amb. 5: 287; 6: 118, t. 54, f. 2.  
*Flos susannae minor* Rumph. Herb. Amb. 5: 287.

ANOECTOCHILUS Blume

- ANOECTOCHILUS REINWARDTII Blume Fl. Jav. Orch. (1858) 48, t. 12, f. 2; t. 12b, f. 14; J. J. Sm. Orch. Amb. (1905) 12.  
*Folium petolatum* Rumph. Herb. Amb. 6: 93.  
*Folium petolatum femina s. vera* Rumph. Herb. Amb. 6: 92, t. 41, f. 3.

The flowers of this plant are unknown, so that the determination is somewhat doubtful. It is certainly not *Macodes petola* Lindl.

ZEUXINE Lindley

- ZEUXINE AMBOINENSIS J. J. Sm. in Ic. Bog. 2 (1905) 259; Schltr. in Bull. Herb. Boiss. II 6 (1906) 298.  
*Haplochilus amboinense* J. J. Sm. in Bull. Inst. Bot. Buitenz. 7 (1900) 2.  
*Folium petolatum mas* Rumph. Herb. Amb. 6: 92, t. 41, f. 2?

This species was not described by Rumphius. The figure, which presents a sterile plant, doubtless represents a species of the *Physurinae* and may belong to *Zeuxine amboinensis* J. J. Sm.

COELOGYNE Lindley

- COELOGYNE RUMPHII Lindl. Fol. Orch. Coelogyne (1854) 14 (type!); J. J. Sm. Orch. Amb. (1905) 16.  
*Pleione rumphii* O. Kuntze Rev. Gen. Pl. (1891) 690.  
*Epidendrum nervosum* Lam. Encycl. 1 (1783) 186 (type!), non *Coelogyne nervosa* Rich.  
*Coelogyne psittacina* Reichb. f. Xen. Orch. 2: 141, t. 153.  
*Angraecum nervosum* Rumph. Herb. Amb. 6: 106, t. 48.

## CALANTHE \* R. Brown

**CALANTHE VERATRIFOLIA** R. Br. in Bot. Reg. 9 (1823) t. 270.

*Limodorum veratrifolium* Willd. Sp. Pl. 4 (1805) 122.

*Calanthe furcata* Batem. in Bot. Reg. 24 (1838) Misc. 28.

*Amblyglottis veratrifolia* Blume Bijdr. (1825) 370.

*Limodorum ventricosum* Steud. Nomencl. ed. 1 (1821) 481.

*Calanthe triplicata* Ames in Philip. Journ. Sci. 2 (1907) Bot. 326, non  
*Orchis triplicata* Willem.

*Flos triplicatus* Rumph. Herb. Amb. 6: 115, t. 52, f. 2.

Mr. Oakes Ames † has adopted the name *Calanthe triplicata* (Willem.) Ames for the plant usually known as *Calanthe veratrifolia* R. Br. on the supposition that *Orchis triplicata* Willem. was the oldest name for the species. From the original description of *Orchis triplicata* Willem., for a copy of which I am indebted to Mr. Merrill, this was certainly not based on *Flos triplicatus* Rumph., although the Rumphian name was cited as a synonym, but was based on a Mauritius plant, presumably *Calanthe sylvatica* Lindl., so that *Calanthe triplicata* Ames, not *Orchis triplicata* Willem., becomes a synonym of *C. veratrifolia* R. Br. Willdenow's description of *Limodorum veratrifolium* is too vague to determine whether it was intended for *Calanthe veratrifolia* R. Br. or *C. sylvatica* Lindl. He cites both *Flos triplicatus* Rumph. and *Orchis triplicata* Willem. as synonyms and gives the distribution as "Ind. Or." Even if *Limodorum veratrifolium* Willd. belongs with *Calanthe sylvatica* Lindl., both *Calanthe veratrifolia* R. Br. and *Amblyglottis veratrifolia* Blume go entirely with the Malayan plant. It is generally accepted that *Calanthe veratrifolia* was published by Roxburgh in Bot. Reg. 7 (1821) sub. t. 573; this is incorrect, as Roxburgh merely states that the genus *Calanthe* should be separated from *Limodorum*, but makes no new combination. *Calanthe veratrifolia* appears first in Bot. Reg. 9 (1823) t. 270. The form described by Rumphius may eventually prove to belong to a different species.

## PHAJUS Loureiro

**PHAJUS AMBOINENSIS** Blume Mus. Bot. 2 (1856) 180; J. J. Sm. Orch. Amb. (1905) 21.

*Phajus zollingeri* Rchb. f. Xenia Orch. 2: 201, Bonplandia 5 (1857) 42.

*Angraecum terrestre alterum* Rumph. Herb. Amb. 6: 113, t. 52, f. 1.  
non t. 50, f. 3.

In the Herbarium Amboinense t. 52, f. 1, is erroneously

\* Retained name, Vienna Code; *Alismorkis* Thou. = *Alismorchis* Thou. (1809) is older.

† Philip. Journ. Sci. 2 (1907) Bot. 326.

referred to *Angraecum terrestre primum purpureum* (*Spathoglottis plicata* Bl.), which was not figured; and t. 50, f. 3, to *Angraecum terrestre alterum* (*Phajus amboinensis* Bl.), with which t. 52, f. 1, doubtless belongs. Linnaeus and Blume did not notice these errors, and therefore the two artificial species *Epidendrum terrestre* Linn. and *Phajus rumphii* Blume, both composed of the characteristics of the two species mentioned above, originate from this confusion. Linnaeus's original description of *Epidendrum terrestre*, which was not available in Buitenzorg, was copied and sent to me by Mr. Merrill. It is as follows:

*Epidendrum terrestre*. E. fol. radicalibus lanceolatis nervosis membranaceis, scapo vaginato, petalis oblongis, nectario cymbiformi bifido. *Rumph. amb. 6, t. 52, f. 1* [Linnaeus Syst. ed 10 (1759) 1246].

Apart from the characteristics *Angraecum terrestre primum purpureum* Rumph. and *Angraecum terrestre alterum* Rumph. have in common, that is "foliis lanceolatis nervosis membranaceis, scapo vaginato," the "folia radicalia" occur only in *Spathoglottis*, while in *Angraecum terrestre alterum* Rumph. the leaves are placed on an elongated erect stem. The nectary (lip) is cymbiform only in *Angraecum terrestre alterum* Rumph. (Herb. Amb. 6: 114), and bifid only in *Angraecum terrestre primum purpureum* Rumph. (Herb. Amb. 6: 112).

Linnaeus, Sp. Pl. ed. 2 (1763) 1352, described *Epidendrum tuberosum* as follows:

*Epidendrum foliis lato-lanceolatis nervosis membranaceis bulbo innatis, scapo vaginato, nectario cymbiformi bifido.*

*Helleborine purpurea, tuberosa radice. Plum. spec. 9. ic. 186. f. 2.*

*Angraecum terrestre primum. Rumph. amb. 6. p. 112 t. 52. f. 1.*

*Habitat in Indiis.*

This too is a species of doubtful status, but I suppose that it has the same value as *Epidendrum terrestre* Linn. It is certainly not *Helleborine purpurea, tuberosa radice* Plum., for Plumier's species does not have a bifid nectary, nor can it be *Angraecum terrestre primum* Rumph., because the nectary of Rumphius's species is not cymbiform. Further it cannot be *Angraecum terrestre alterum* Rumph. as this has no bulbs and the nectary is not bifid.

**PHAJUS GRATUS** Blume Mus. Bot. 2 (1856) 181.

*Limatodes grata* Miq. Fl. Ind. Bat. 3 (1855) 672.

*Angraecum terrestre primum album* Rumph. Herb. Amb. 6: 113, t. 50, f. 3.

This species is unknown to me. From Rumphius's description

one would think that it referred to a white-flowered form of *Spathoglottis*, and, if this suggestion is correct, Blume's description applies only to the species figured by Rumphius, *t. 50, f. 3*. It is to be noted that Blume gives a detailed description of the lip of *Phajus gratus* Bl., although he certainly did not see a specimen, and Rumphius does not describe the lip.

#### SPATHOGLOTTIS Blume

**SPATHOGLOTTIS PLICATA** Blume Bijdr. (1825) 401, Tabell. *f. 76*; J. Sm. Orch. Amb. (1905) 24.

*Angraecum terrestre primum purpureum* Rumph. Herb. Amb. 6: 112.

Rumphius's description applies to *Spathoglottis plicata* Blume. In the Herbarium Amboinense *t. 52, f. 1* is erroneously referred here; it represents *Phajus amboinensis* Blume.

*Phajus rumphii* Blume, Mus. Bot. 2 (1856) 179, is an artificial species based on the characters of *Angraecum terrestre primum purpureum* Rumph. (*Spathoglottis plicata* Blume) and *Angraecum terrestre alterum* Rumph. (*Phajus amboinensis* Blume).

#### EULOPHIA \* R. Brown

? **EULOPHIA** sp.

*Orchis amboinica major radice digitata* Rumph. Herb. Amb. 6: 116.

Hasskarl suggests that this plant may be *Cyrtoptera ensiformis* Lindl. Rumphius's description applies closely to *Eulophia*, but I do not know any species of the genus to which the statement "radix digitata" is applicable.

#### LIPARIS L. C. Richard

**LIPARIS TREUBII** J. J. Sm. nom. nov.

*Liparis amboinensis* J. J. Sm. in Bull. Jard. Bot. Buitenz. 13 (1914) 6, non Orch. Amb. (1905) 31.

*Liparis confusa* J. J. Sm. var. *amboinensis* J. J. Sm. Orch. Amb. (1905) 35.

*Angraecum gajang* Rumph. Herb. Amb. 6: 108.

There is no doubt that *Angraecum gajang* Rumph. is a *Liparis*. A careful study of the question of its identity has convinced me that it is the form I described as *Liparis amboinensis*, here called *L. treubii*; Rumphius's description agrees entirely with mine. In raising *Liparis confusa* var. *amboinensis* to specific rank, I unfortunately overlooked the fact that the name was preoccupied in the genus.

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\* Retained name, Vienna Code; *Graptorkis* Thou.=*Graptorchis* Thou. (1809) is older.



## DENDROBIUM \* Swartz

**DENDROBIUM CALCEOLUM** Roxb. Hort. Beng. (1814) 63, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 488.

*Dendrobium roxburghii* Lindl. in Journ. Linn. Soc. Bot. 3 (1859) 4.

*Aporum roxburghii* Griff. in Calc. Journ. Nat. Hist. 5 (1835) 370.

*Herba supplex quinta* Rumph. Herb. Amb. 6: 111, t. 51, f. 2.

The citation of Rumphius by Roxburgh is incomplete, and as to the figure is erroneous.

**DENDROBIUM ACINACIFORME** Roxb. Hort. Beng. (1814) 63, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 487.

*Dendrobium scalpelliforme* T. & B. in Nat. Tijdschr. Ned. Ind. 27 (1864) 17; J. J. Sm. Orch. Amb. (1905) 111.

*Herba supplex major prima* s. *Herba supplex femina* Rumph. Herb. Amb. 6: 111.

*Dendrobium acinaciforme* Roxb. and *D. scalpelliforme* T. & B. are undoubtedly synonymous, and I think that the reduction of *Herba supplex major prima* to *Dendrobium acinaciforme* Roxb. is the correct disposition of it. The yellow color of the flowers is a character so uncommon in the group that it serves as a valuable indication of the identity of the Rumphian species. However, I have never seen specimens with stems as long as those described by Rumphius. It is certainly not *Dendrobium calceolum* Roxb., which is *Herba supplex quinta*. Rumphius's t. 51, f. 1, can scarcely belong with the plant described as *Herba supplex prima*, as he states that the leaves are in shape similar to those of *Herba supplex minor*, while the figure presents a species with flat, not laterally compressed, leaves; I do not recognize it.

**DENDROBIUM PAPILIONIFERUM** J. J. Sm. Orch. Amb. (1905) 42.

*Dendrobium crumenatum* Sw., fl. lilac. Miq. Choix. t. 22, f. 1.

*Angraecum crumenatum* Rumph. Herb. Amb. 6: t. 47, f. 2.

The figure of *Angraecum crumenatum* does not represent the species generally regarded as *Dendrobium crumenatum* Sw., but the form with purple flowers figured by Miquel and described by me as *Dendrobium papilioniferum*. I have not seen the original description of *Dendrobium crumenatum* Sw., but the common Malayan species currently known as *D. crumenatum* is certainly specifically distinct from *Dendrobium papilioniferum* J. J. Sm.

In the Herbarium Amboinense, explanation of t. 47, it is stated that *Angraecum crumenatum* is described in chapter 57 of the Auctuarium. The only plant described in this chapter that

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\* Retained name, Vienna Code; *Callista* Lour. (1790) is older.

agrees more or less with *Dendrobium crumenatum* is *Angraecum angustis crumenis*. I have thought that the material Rumphius described might have presented two species growing together, but after a careful study of the question I am now convinced that the plant in question must be an *Eria*, probably *Eria molluccana* Schltr. & J. J. Sm.

**DENDROBIUM EPHEMERUM** J. J. Sm. comb. nov.

*Dendrobium papilioniferum* J. J. Sm. var. *epherum* J. J. Sm. Orch. Amb. (1905) 45.

*Angraecum album minus* Rumph. Herb. Amb. 6: 99, t. 44, f. 1.

The plant is not a variety of *Dendrobium papilioniferum* J. J. Sm. as I formerly supposed, although it is not impossible that it is a hybrid. The suggestions of Linnaeus, Willdenow, and Hasskarl, who respectively reduced this form to *Epidendrum spathulatum* Linn., *Cymbidium ovatum* Willd., and *Dendrobium bursigerum* Lindl., are certainly incorrect. The other form described by Rumphius in this chapter is probably another species of *Dendrobium*, certainly not *Hysteria veratrifolia* Reinw., as Hasskarl has suggested.

**DENDROBIUM RUMPHIANUM** T. & B. in Nat. Tijdschr. Ned. Ind. 24 (1862) 317; J. J. Sm. Orch. Amb. (1905) 57.

*Angraecum flavum sextum moschatum* s. *odoratum* Rumph. Herb. Amb. 6: 102.

? *Angraecum flavum nonum* Rumph. Herb. Amb. 6: 104, excl. fig.

It is possible that *Dendrobium minax* Rehb. f., which I formerly reduced to *D. rumphianum* T. & B., may represent some other species. It is very doubtful whether or not the Bali plant mentioned by Rumphius belongs with this species. Rumphius's description of *Angraecum flavum nonum* agrees very well with this species, but the figure closely resembles that of *Angraecum flavum septimum*.

**DENDROBIUM MIRBELIANUM** Gaudich. Bot. Freyc. Voy. (1826) 423, t. 38; J. J. Sm. Orch. Amb. (1905) 56.

*Dendrobium prionochilum* Kränzl. in Österr. Bot. Zeitschr. 44 (1894) 261 (ex Kränzl.).

*Dendrobium rosenbergii* T. & B. in Nat. Tijdschr. Ned. Ind. 24 (1862) 317.

*Angraecum flavum septimum* Rumph. Herb. Amb. 6: 103, t. 45; (t. 46, f. 2?).

I cannot distinguish Rumphius's figure of *Angraecum flavum nonum* (t. 46, f. 2) from that of *Angraecum flavum septimum* (t. 45). The description of the former, however, agrees very well with *Angraecum flavum sextum moschatum* Rumph. = *Dendrobium rumphianum* T. & B.

**DENDROBIUM MOLUCCENSE** J. J. Sm. in Bull. Jard. Bot. Buitenz. 13 (1914) 11.

*Dendrobium atropurpureum* J. J. Sm. (nec Miq.) Orch. Amb. (1905) 54.

*Herba supplex minor* Rumph. Herb. Amb. 6: 110, t. 50, f. 2.

The species of the section *Oxystophyllum* have been frequently misunderstood and misinterpreted, partly due to the incomplete descriptions. *Herba supplex minor* is neither *Dendrobium concinnum* Miq. nor *D. atropurpureum* Miq.

**DENDROBIUM PURPUREUM** Roxb. Fl. Ind. ed. 2, 3 (1832) 484.

*Dendrobium viridiroseum* Rchb. f. in Bonplandia 3 (1855) 226.

*Angraecum purpureum silvestre* Rumph. Herb. Amb. 6: 109, t. 50, f. 1.

There is no doubt as to the correctness of this reduction, which was made by Roxburgh.

**DENDROBIUM ANOSMUM** Lindl. in Bot. Reg. 21 (1844) Misc. 41.

*Dendrobium superbum* Rchb. f. var. *anosmum* Rchb. f. in Walp. Ann. 6 (1861) 283.

*Dendrobium superbum* Rchb. f. in Walp. Ann. 6 (1861) 282.

*Dendrobium macrophyllum* Lindl. Bot. Reg. 25 (1839) Misc. 36, non A. Rich.

*Dendrobium macranthum* Hook. in Curtis's Bot. Mag. 69 (1843) t. 3870, non A. Rich.

*Dendrobium scortechinii* Hook. f. Fl. Brit. Ind. 5 (1890) 741.

*Dendrobium leucorhodum* Schltr. Orch. Neu-Guinea (1913) 499.

*Angraecum caninum s. undecimum* Rumph. Herb. Amb. 6: 105, t. 47, f. 1.

I have seen no specimens of *Dendrobium anosmum* Lindl., but as the plant is usually considered to be a mere variety of *Dendrobium superbum* Rchb. f. there is no good reason for replacing Lindley's name by the more recent one proposed by Reichenbach f. The figure of *Dendrobium anosmum* Lindl., in Paxt. Mag. Bot. 15: 97, represents a short-flowered form of *Dendrobium superbum* Rchb. f. *Dendrobium anosmum* Lindl. is credited to the Philippine Islands by Lindley, Bot. Reg. 31 (1845) Misc. 32, but is not mentioned by Mr. Ames.

**DENDROBIUM** sp.

*Herba supplex major quarta* Rumph. Herb. Amb. 6: 111.

The description of the flower is strongly suggestive of *Dendrobium confusum* Schltr., but so far as I know Schlechter's species never attains the length noted by Rumphius. Suggested reductions by other authors are in contradiction with the description.

**DENDROBIUM** sp.

*Angraecum purpureum et nudum* Rumph. Herb. Amb. 6: 109, t. 49, f. 2.

Lindley reduced this form to *Dendrobium bifarium* Lindl., the

correctness of which I doubted in my former consideration of the Amboina *Orchidaceae*.\* *Dendrobium bifarium* Lindl. was based on a flowerless specimen from Penang and is now recognized as a species of the section *Distichophyllum* with solitary flowers. Accordingly *Angraecum purpureum et nudum* Rumph. cannot possibly belong here. The form described by Rumphius is apparently a species of *Dendrobium*, perhaps of the section *Pedilonum*.

**DENDROBIUM** sp.

*Angraecum jamboe* Rumph. Herb. Amb. 6: 108.

In my former treatment of the *Orchidaceae* of Amboina I reduced this to *Dendrobium pruinatum* T. & B., but I now am of the opinion that that was an erroneous disposition of it. The leaves are not acute, and the lip is not violet-blue. Doctor Robinson in his field notes suggests that the plant may be *Pseuderia foliosa* Schltr., but there are so many discrepancies between Rumphius's description and the characters of Brongniart's species that it is very doubtful if this suggested disposition of it is the correct one. I suppose that the plant in question is a species of *Dendrobium* of the section *Grastidium*.

? **DENDROBIUM** sp.

*Herba supplex major tertia* Rumph. Herb. Amb. 6: 111.

The status of this plant is doubtful, but it is probably a species of *Dendrobium* of the section *Rhoplalanthe*. It certainly cannot be referred to *Dendrobium atropurpureum* Miq. as Hasskarl suggested.

? **DENDROBIUM** sp.

*Herba supplex major secunda* Rumph. Herb. Amb. 6: 111.

The description is so vague that it is not even certain that the plant described by Rumphius belongs in the genus *Dendrobium*. According to the explanation of *t. 51, f. 1*, this figure represents *Herba supplex femina s. secunda*, not *Herba supplex major secunda*.

**ERIA** † Lindley

**ERIA** **MOLUCCANA** Schltr. & J. J. Sm. Orch. Amb. (1905) 74.

*Angraecum angustis crumenis* Rumph. Herb. Amb. 6: 107.

Under *Dendrobium papilioniferum* J. J. Sm. I have already pointed out that this is probably the correct disposition of the plant Rumphius described. The data given by Rumphius con-

\* Orch. Amb. (1905) 62, 119.

† Retained name, Vienna Code; *Pinalia* Buch.-Ham. (1825) is older.

forms closely with the characters of *Eria moluccana* Schltr. & J. J. Sm., the two lateral leafy stems being the inflorescences with bracts.

*ERIA* sp.

*Angraecum lanuginosum* Rumph. Herb. Amb. 6: 108.

The form described is doubtless an *Eria* of the section *Trichotosia*. No species of this section has as yet been described from Amboina under the binomial system.

**BULBOPHYLLUM** \* Thouars

**BULBOPHYLLUM** sp.

*Angraecum uniflorum* Rumph. Herb. Amb. 6: 107.

The description of this plant in almost every point applies to *Bulbophyllum grandiflorum* Blume, but so far as I know Blume's species has not been recorded from Amboina.

**GRAMMATOPHYLLUM** Blume

**GRAMMATOPHYLLUM SCRIPTUM** (Linn.) Blume Rumphia 4 (1848) 48; J. J. Sm. Orch. Amb. (1905) 84.

*Grammatophyllum rumphianum* Miq. Ann. Mus. Bot. Lugd. Bat. 4 (1869) 219, t. 8, 9.

*Grammatophyllum speciosum* Lindl. Gen. et. Sp. Orch. (1833) 173, p. p.

*Grammatophyllum leopardinum* Rehb. f. in Flora 46 (1888) 151.

*Grammatophyllum guilelmi* II Kränzl. in Gartenfl. 43 (1894) 114.

*Gabertia scripta* Gaudich. Bot. Freyc. Voy. (1826) 425.

*Vanda scripta* Spreng. Syst. 3 (1826) 719.

*Cymbidium scriptum* Sw. in Schrad. Journ. (1799) 218.

*Epidendrum scriptum* Linn. Sp. Pl. ed. 2 (1763) 1351 (type!).

*Angraecum scriptum* Rumph. Herb. Amb. 6: 95, t. 42.

In addition to the above form Rumphius describes two other species in this chapter, one growing on *Mangifera* and other trees, the other on *Cocos*. Hasskarl suggests that the first may be *Cymbidium wallichii* Lindl., while Blume refers the latter, from its Portuguese name *Fulha alacra*, to *Arachnis flos aeris* Rehb. f. The suggested reductions of both, however, are contradicted by Rumphius's descriptions.

**PHALAEOPSIS** Blume

**PHALAEOPSIS AMABILIS** (Linn.) Blume Bijdr. (1825) 294, Tabell. f. 44.

*Epidendrum amabile* Linn. Sp. Pl. (1753) 953.

*Cymbidium amabile* Roxb. Hort. Beng. (1814) 63.

*Phalaenopsis grandiflora* Lindl. in Gard. Chron. (1848) 39.

*Angraecum album majus* Rumph. Herb. Amb. 6: 99, t. 43.

Rumphius briefly describes two forms which, without doubt,

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\* Retained name, Vienna Code; *Phyllorkis* Thou. = *Phyllorchis* Thou. (1809) is older.

are referable to the same species. It is well known that the flowers of *Phalaenopsis amabilis* Blume vary considerably in size, in the form of the sepals, petals, lip, and especially in the size and markings of the yellow area on the lip. Specimens with the sepals purplish on the outside are not rare. Rumphius's description of the first form does not at all apply to *Phalaenopsis violacea* T. & B., to which it was reduced by Hasskarl.

#### LUISIA Gaudichaud

**LUISIA CONFUSA** Rehb. f. in Walp. Ann. 6 (1861) 621.

*Luisia teretifolia* Blume (non Gaudich.) Rumphia 4 (1848) t. 194, f. 3, t. 197D.

*Angraecum decimum et angustifolium* Rumph. Herb. Amb. 6: 104.

*Luisia teretifolia* Gaudich., as formerly interpreted, contained several distinct species. I think that Reichenbach was correct in separating from it the Amboina form under the name *Luisia confusa* Rehb. f.

#### VANDA R. Brown

**VANDA FURVA** Lindl. (non Blume) Gen. et Sp. Orch. (1833) 215; J. Sm. Orch. Amb. (1905) 98.

*Cymbidium furvum* Willd. Sp. Pl. 4 (1805) 103.

*Epidendrum furvum* Linn. Sp. Pl. ed. 2 (1763) 1348 (type!), excl. syn. Rheede.

*Angraecum octavum et furvum* Rumph. Herb. Amb. 6: 104, t. 46, f. 1.

**VANDA** sp.

*Vanda crassiloba* T. & B. (non J. J. Sm.) in Cat. Hort. Bogor. (1866) 48, *nomen nudum*.

*Angraecum saxatile* Rumph. Herb. Amb. 6: 107, t. 49, f. 1.

The plant I described in my former treatment of the *Orchidaceae* of Amboina as *Vanda crassiloba*, is certainly not the same as the species Teysmann and Binnendijk had in view. The latter is very similar to *Vanda celebica* Rolfe and will probably prove to be a variety of this or a closely allied species when fresh material from Amboina shall have become available. The species of the *Vanda hastifera* group are in want of revision. It is evidently quite different from *Cymbidium*, where it was placed by Hasskarl.

#### VANDOPSIS Pfitzer

**VANDOPSIS LISSOCHILOIDES** (Gaudich.) Pfitz. in Engl. & Prantl Nat. Pflanzenfam. 2<sup>e</sup> (1889) 210, f. 229.

*Fieldia lissochiloides* Gaudich. Bot. Freyc. Voy. (1826) 424, t. 36.

*Vanda lissochiloides* Lindl. Gen. et Sp. Orch. (1833) 216.

*Vanda batemannii* Lindl. in Bot. Reg. (1846) t. 59.

*Stauroopsis lissochiloides* Benth. ex Pfitz. Vergl. Morph. Orch. (1882) 14.

*Angraecum quintum* Rumph. Herb. Amb. 6: 102.

## RENANTHERA Loureiro

RENANTHERA MOLUCCANA Blume Rumphia 4 (1848) 54, t. 193, f. 2; t. 197E.

Angraecum rubrum Rumph. Herb. Amb. 6: 101, t. 44, f. 2.

I do not understand the exact status of the form of this plant described by Rumphius.

## SARCANTHUS Lindley

SARCANTHUS SUBULATUS (Blume) Reichb. f. in Bonplandia 5 (1857) 41; J. J. Sm. Orch. Amb. (1905) 103.

Sarcanthus secundus Griff. Not. 3 (1851) 362.

Cleisostoma subulatum Blume Bijdr. (1825) 363.

Angraecum pungens Rumph. Herb. Amb. 6: 106.

I have little doubt that the plant described by Rumphius as *Angraecum pungens* is the same as *Sarcanthus subulatus* Rchb. f. Usually the sepals and petals are light or dark brown with a pale center, but the specimen I collected in Amboina had very pale flowers. *Schoenorchis juncifolia* Blume, to which Hasskarl reduced it, is a totally different plant.

## ORCHIDACEAE OF UNCERTAIN STATUS

Angraecum sediforme Rumph. Herb. Amb. 6: 107.

Unrecognizable.

Angraecum taeniosum Rumph. Herb. Amb. 6: 108.

The plant described by Rumphius evidently belongs in the *Sarcanthinae*.

Maccabuhay Rumph. Herb. Amb. 5: 287.

It is not at all certain that this plant is an orchid. The material was from the Philippines; see *Tinospora*, *Menispermaceae*.

Satyria Rumph. Herb. Amb. 5: 287.

Unrecognizable. Rumphius's material was from China, the Chinese name *pu sang tjan* being quoted by him.

## ANGIOSPERMAE

## (DICOTYLEDONS)

## CASUARINACEAE

## CASUARINA Linnaeus

CASUARINA RUMPHIANA Miq. in Flora 48 (1865) 23 (type!), 38.

Casuarina montana Rumph. Herb. Amb. 3: 87, t. 58 (excl. f. A).

AMBOINA, Soja, Robinson Pl. Rumph. Amb. 411, October 24, 1913, altitude about 275 meters, locally known as *kasuari*.

*Casuarina montana* is the whole basis of *Casuarina rumphiana* Miq., as originally published in Flora 48 (1865) 23, but on page 38 of the same volume Miquel amplifies the description from

specimens collected in Amboina by Teysmann and DeVriese. In his *Revisio critica Casuarinarum* (1848) 282 and in his *Flora Indiae Bataviae* 1<sup>1</sup> (1858) 873, Miquel erroneously referred *Casuarina montana* Rumph. to *Casuarina nodiflora* Forst. The species is a characteristic one of the mountain forests of the Philippines and of the Moluccas.

**CASUARINA EQUISETIFOLIA** Linn. Amoen. Acad. 4 (1759) 143 (type!) (*equisefolia*); Forst. Char. Gen. (1776) 103. t. 52.

*Casuarina litorea* Rumph. Herb. Amb. 3: 86, t. 57.

This widely distributed and well-known species is not represented in our Amboina collections. Rumphius's figure is an excellent one, and there is no doubt whatever as to the correctness of this reduction, which was originally made by Linnaeus; in fact *Casuarina litorea* Rumph. is the type of *Casuarina equisetifolia* Linn. as published in Amoen. Acad. 4 (1759) 143, although the species is usually accredited to Forster (1776).

**CASUARINA SUMATRANA** Jungh. in Hov. & DeVriese Tijdschr. 11 (1844) 115.

*Casuarina celebica* Rumph. Herb. Amb. 3: 87, t. 58 f. A.

This disposition of *Casuarina celebica* follows Miquel and is certainly correct. The species is well characterized by its relatively large fruits.

## PIPERACEAE \*

### PIPER Linnaeus

**PIPER ARBORESCENS** Roxb. Hort. Beng. (1814) 80 (type!), Fl. Ind. 1 (1820) 161, ed. 2, 1 (1832) 159.

*Piper miniatum* Blume in Verh. Bat. Genoots. 11 (1826) 166.

*Sirium arborescens tertium* Rumph. Herb. Amb. 5: 46, t. 28, f. 1.

AMBOINA, Soja, Way tommo, Koeda mati, Gelala, Amahoesoe, and Haiong, Robinson Pl. Rumph. Amb. 62, 63, 64, 609, August and September, 1913, locally known *siri seytan* and *siri tulak tulak*.

The Rumphian illustration is the whole basis of *Piper arborescens* Roxb. as originally published in the Hortus Bengalensis

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\* I am under obligations to Mr. C. de Candolle, Geneva, Switzerland, for determinations of the *Piperaceae* collected by Doctor Robinson. In all but two cases the specimens are here quoted under the binomials indicated by him, the exceptions being *Piper decumanum* Linn., reported as *P. forstenii* C. DC., and *Piper arborescens* Roxb., reported as *P. miniatum* Blume, the specific name adopted by me being accepted as the oldest valid one in each case. The determinations of the Rumphian species are by Doctor Robinson and myself.



(1814) 80.\* The species was later briefly described by Roxburgh from specimens collected in the Moluccas, the reference to Rumphius being included in the description. The description applies to the above specimens in all respects, and is not at all *Thottea dependens* Klotzsch, as reduced in Index Kewensis. The actual Amboina specimens were determined by C. de Candolle as *Piper miniatum* Blume, Blume's species thus becoming a synonym of *Piper arborescens* Roxb. In Stickman's Herb. Amb. (1754) 19, it is erroneously referred to *Piper malamiris* L.

**PIPER CANINUM** Blume in Verh. Bat. Genoots. 11 (1826) 214, var. **GLABRIBRACTEUM** C. DC. in Philip. Journ. Sci. 5 (1910) Bot. 459.

*Piper caninum* Rumph. Herb. Amb. 5: 49, t. 28, f. 2.

AMBOINA, Waë and Amahoesoe, *Robinson Pl. Rumph. Amb.* 57, August and November, 1913, on coral rocks and on trees at low altitudes.

Blume was certainly correct in referring this Rumphian species to *Piper caninum* Blume. Loureiro, Fl. Cochinch. (1790) 30, discussed it under *Piper sylvestre* Lour., while Roxburgh, Fl. Ind. 1 (1820) 161, reduced it to *Piper cubeba*; *Piper cubeba* Roxb., non Linn., is a synonym of *Piper caninum* Blume.

**PIPER DECUMANUM** Linn. in Stickman Herb. Amb. (1754) 19, Amoen. Acad. 4 (1759) 128 (type!), Syst. ed. 10 (1759) 856, Sp. Pl. ed. 2 (1762) 41, excl. syn. Plumier.

*Piper forstenii* C. DC. Prodr. 16<sup>1</sup> (1869) 348.

*Sirium decumanum* Rumph. Herb. Amb. 5: 45, t. 27.

AMBOINA, Hatiwe, Batoe merah, and Oerimesseng, *Robinson Pl. Rumph. Amb.* 61, August and September, 1913, climbing on trees, altitude 10 to 250 meters.

*Sirium decumanum* Rumph. is the whole basis of *Piper decumanum* Linn. as originally published and is hence the type of the species; Linnaeus took his specific name *decumanum* from Rumphius. Later he added also a reference to Plumier, Amer. 59, t. 76, which represents a species totally different from *Sirium decumanum*. C. de Candolle, Prodr. 16<sup>1</sup> (1869) 370, interpreted *Piper decumanum* Linn. from the reference to Plumier and described the Amboina species as *Piper forstenii* C. DC. Some of the early authors referred it to *Piper methysticum* Forst., but it has nothing to do with Forster's species. It has also been cited under *Piper majusculum* Blume and *Chavica majuscula* Miq., while Miquel referred it to *Chavica rumphii* Miq. Both Blume's and Miquel's species are apparently different from *Piper decumanum* Linn. (*P. forstenii* C. DC.) as here interpreted.

\* See C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 415.

**PIPER BETLE** Linn. Sp. Pl. (1753) 28.

*Siriifolium* Rumph. Herb. Amb. 5: 336, t. 116, f. 2.

The common betel pepper is not represented in our Amboina collections, yet *Piper betle* is manifestly the correct disposition of *Siriifolium* Rumph. Linnaeus reduced it, through error, to *Piper longum* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, and later, Sp. Pl. ed. 2 (1762) 41, placed it under *Piper malamiris* Linn., which is apparently a synonym of *Piper betle* Linn. Radermacher, Loureiro, Roemer and Schultes, Blume, and other authors cite it under *Piper betle* Linn., and Miquel cites it under *Chavica betle* Miq.

**PIPER BETLE** Linn. var. **SIRIBOA** (Linn.) C. DC. Prodr. 16<sup>1</sup> (1869) 359.

*Piper siriboa* Linn. Sp. Pl. (1753) 29.

*Siriboa* Rumph. Herb. Amb. 5: 340, t. 117.

*Siriboa* Rumph. was originally reduced to *Piper siriboa* Linn., in Stickman Herb. Amb. (1754) 22, one year after the publication of the species, and has been very consistently cited under this name in subsequent botanical literature. The forms described by Rumphius as *I alba*, *II cambing*, and *III fragrans* are apparently but variants of *Piper betle* or the variety *siriboa*.

**PIPER AMBOINENSE** (Miq.) C. DC. Prodr. 16<sup>2</sup> (1869) 347.

*Chavica amboinensis* Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1863-64) 134.

*Sirium arborescens tertium alterum* Rumph. Herb. Amb. 5: 48.

AMBOINA, Mahija, Batoe gadjah, and near the town of Amboina, *Robinson Pl. Rumph. Amb. 58*, ascending to an altitude of 250 meters, climbing on trees, locally known as *siri seytan*.

The specimen cited above represents a characteristic species of *Piper*, and it is probably the form described by Rumphius, here reduced to *Piper amboinense* C. DC.

**PIPER REINWARDTIANUM** (Miq.) C. DC. Prodr. 16<sup>1</sup> (1869) 354.

*Macropiper reinwardtianum* Miq. in Linnaea 21 (1848) 481.

*Sirium decumanum album* Rumph. Herb. Amb. 5: 45.

AMBONIA, Waë, Lateri, and Halong, *Robinson Pl. Rumph. Amb. 60*, August and November, 1913, in light forests, altitude from sea level to 150 meters, locally known as *siri utan*, *siri tallan*, and *siri tallan perampuan*.

The specimen cited here probably represents the form that Rumphius described. Vahl, Enum. 1 (1804) 334, referred the Rumphian species to *Piper album* Vahl, a species based on Javan specimens and one of doubtful status. There is no particular reason for believing that the Amboina plant is the same as the Javan one described by Vahl, but it does appear from the description to be referable to *Piper reinwardtianum* C. DC.

**PIPER RETROFRACTUM** Vahl Enum. 1 (1804) 314.

*Piper chaba* Hunter in As. Res. 9 (1809) 391.

*Chavica officinarum* Miq. Syst. Pip. (1844) 256.

*Piper officinarum* C. DC. Prodr. 16<sup>1</sup> (1869) 356.

*Piper longum* Rumph. Herb. Amb. 5: 333, t. 116, f. 1.

*Piper longum* e Philippinis Rumph. Herb. Amb. 5: 334.

*Pharmacum magnum vulgare* Rumph. Herb. Amb. 5: 42, t. 26, f. 2?

*Piper retrofractum* Vahl is not represented in our Amboina collections. The figure of *Piper longum* Rumph., however, seems to represent Vahl's species, this reduction being in agreement with Miquel and with C. de Candolle. The form from the Philippines I have determined largely from the native name cited by Rumphius, *sabia* being the universal name, at least about Manila, for *Piper retrofractum* Vahl. I follow Miquel also in reducing here *Pharmacum magnum vulgare* Rumph., who considered that it represented a form near *Chavica officinarum* Miq. Linnaeus reduced *Piper longum* Rumph. to *Piper amalago* Linn., in Stickman Herb. Amb. (1754) 22, Amoer. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 856, Sp. Pl. ed. 2 (1762) 41, which was an entirely erroneous disposition of it, as *Piper amalago* Linn. is an American species. Loureiro, Fl. Cochinch. (1790) 32, erroneously reduced it to *Piper longum* Linn. Roxburgh, Fl. Ind. 1 (1820) 158, placed it under *Piper chaba* Hunter, which is a synonym of *P. retrofractum* Vahl. Poirlet, in Lamarck Encycl. 5 (1804) 460, erroneously placed it under *Piper plantagineum* Lam., and it has been cited under *Chavica officinarum* Miq. and *Piper officinarum* C. DC., both synonyms of *Piper retrofractum* Vahl.

**PIPER CADUCIBRACTEUM** C. DC. sp. nov.

*Sirium silvestre* Rumph. Herb. Amb. 5: 342, t. 118, f. 1, 2.

AMBOINA, Halong and Koeda mati, *Robinson Pl. Rumph. Amb. 59* (type!), August and September, 1913, climbing on trees at low altitudes, locally known as *siri seytan*; *Teysmann* in Herb. Bogor.

Ramulis glabris; foliis breviter petiolatis glabris, limbo ovato-elliptico basi leviter inaequilatera utrinque acuto apice acute acuminato, in mare 5-plinervio, in femine 9-ninervio nervo centrali nervos adscendentes 2 mittente quorum supremus 2 in mare et 3 in femina a basi solutis quorum externi aliis multo breviores et tenuiores, petiolo basi ima vaginante; pedunculo glabro petiolum aequante vel paulo superante, stirpis masc. spica quam limbus pluries brevior, rhachi hirsuta, bracteae pelta rotunda glabra centro pedicellata pedicello hirsuto, staminibus 2 antheris minutis rotundatis 4-valvatis filamenta fere aequantibus; stirpis fem. spica quam limbus pluries brevior,

rhachi hirsuta, bracteae pelta glabra elliptica centro pedicellata decidua pedicello hirsuto, baccis condensis obovatis glabris, stigmatibus rotundatis minutis.

Dioicum. Ramuli spiciferi in mare 1 mm in femina 1.5 ad 2 mm crassi, collenchyma libriforme in mare in fasciculos discretos dispositum in femina subcontinuum, fasciculi intramedullares 2-seriati, canalis lysigenus centralis periphericque multi. Limbo in sicco firme membranacei minute pellucido-punctulati, superi usque ad 18 cm longi et 8 cm lati. Petioli usque ad limbi latus longius 10 mm, inter limbi latera 1 mm longi. Spica in mare subflorens 4 cm longa et 2.25 mm crassa, in femina usque ad 4.5 cm longa et 3 mm crassa. Rhachis in mare et in femina canalibus lysigenis periphericis munita, bracteae pelta in mare 1 mm diam., in femina 1 mm longa et 0.75 mm alta, bacca 1.5 mm longa in sicco atrorubens vel nigra.

The above description, based on the two specimens cited above, has been kindly supplied by Mr. C. de Candolle of Geneva, Switzerland. The identification of *Sirium silvestre* Rumph. with *Piper caducibracteum* C. DC. has been made by myself, following Doctor Robinson's suggestion that the specimen collected by him possibly represented Rumphius's species. Two forms are described and figured by Rumphius, but I consider that *Sirium silvestre* II, at least as figured, represents merely a juvenile form of *Sirium silvestre* I. Linnaeus, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 856, referred it to *Piper malamiris* Linn., where it certainly does not belong. Miquel thought that both forms described by Rumphius might be the same as *Chavica malamiris* Miq., which is merely a synonym of *Piper malamiris* Linn. C. de Candolle, Prodr. 16<sup>1</sup> (1869) 361, cites both figures with doubt under *Piper sirium* C. DC., which is essentially a new name for *Chavica malamiris* Miq.; only Indian specimens are cited, and it is entirely improbable that the Amboina plant cited by Rumphius is the same as the Indian one described.

**PIPER NIGRUM** Linn. Sp. Pl. (1753) 28.

*Piper album et nigrum* Rumph. Herb. Amb. 5: 335.

This reduction follows Miquel, Syst. Piper. (1844) 309, and is unquestionably the correct disposition of the plant that Rumphius described.

**PIPER SUBPELTATUM** Willd. Sp. Pl. 1 (1798) 166 (type!).

*Lomba* Rumph. Herb. Amb. 6: 133, t. 59, f. 1.

Linnaeus originally reduced *Lomba* to *Piper peltatum* Linn., an American species to which it does not belong, in Stickman

Herb. Amb. (1754) 27, Amoen. Acad. 4 (1759) 135, Sp. Pl. ed. 2 (1762) 42, in which he was followed by Burman f., Fl. Ind. (1768) 15. It is the type of *Piper subpeltatum* Willd., which C. de Candolle considers to be a variety of *Piper umbellatum* Linn., in Donn.-Sm. Enum. 6: 39, Philip. Journ. Sci. 5 (1910) Bot. 463. *Lomba* has also been cited by various authors under the synonyms *Peperomia subpeltata* Dietr., *Peperidia subpeltata* Kostel., and *Potemorphe subpeltata* Miq.

**PIPER SARMENTOSUM** Roxb. Fl. Ind. 1 (1820) 162.

*Sirium terrestre* Rumph. Herb. Amb. 5: 344, t. 119, f. 1.

AMBOINA, Robinson Pl. Rumph. Amb. 56, July 17, 1913, along roadsides in the vicinity of the town of Amboina, July 17, 1913, locally known as *siri rambang*.

Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1858) 446, thought that *Sirium terrestre* might be *Chavica sphaerostachya* Miq., but C. de Candolle, Prodr. 16<sup>1</sup> (1869) 389, definitely excludes it as a synonym of Miquel's species, and refers it, l. c. 360, to *Piper arcuatum* Blume. The specimen, however, which certainly represents the form that Rumphius described and figured, is not at all *Piper arcuatum* Blume, but is typical *Piper sarmentosum* Roxb.

**PIPER** sp.

*Sirium frigidum rotundifolium* Rumph. Herb. Amb. 5: 345, t. 119, f. 2.

This is not represented in our Amboina collections. Vahl, Enum. 1 (1804) 333, referred it to *Piper diffusum* Vahl, a species based on Ceylon specimens and which is apparently the same as *Piper argyrophyllum* Miq.; see Trimen Fl. Ceyl. 3 (1895) 429. Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1858) 441, thought that it might be *Piper sarmentosum* Roxb., but the other form figured on the same plate, *Sirium terrestre* Rumph., is *Piper sarmentosum* Roxb. and is different from *Sirium frigidum rotundifolium* Rumph. The form described as *Sirium frigidum latifolium* Rumph., Herb. Amb. 5: 345, is indeterminable. Hasskarl, Neue Schlüssel (1866) 131, thought that it was *Piper album* Vahl, but there is no reason for considering that this reduction is correct.

**PIPER** sp.

*Pharmacum magnum parvifolium* Rumph. Herb. Amb. 5: 42, t. 26, f. 2.

Nothing in our Amboina collections matches this figure. The species is indeterminable from the data at present available.

**PIPER** sp.

*Pharmacum magnum marinum* Rumph. Herb. Amb. 5: 42.

Indeterminable from data at present available.

## FAGACEAE

## QUERCUS Linnaeus

**QUERCUS MOLUCCA** Linn. Sp. Pl. (1753) 1199 (type!).

*Quercus molucca* Rumph. Herb. Amb. 3: 85, t. 56.

The Rumphian figure and illustration are the whole basis of this species, which is one of the few published in the first edition of the Species Plantarum with references to the Herbarium Amboinense. The species has been recognized in all general works, but it is by no means certain that all of the botanical material in herbaria under the name *Quercus molucca* Linn. is of the same form as that figured and described by Rumphius. It is to be typified by material from the Sula Islands from whence Rumphius received his material.

A second form, very briefly described, having oblong inedible fruits, apparently represents a distinct species of *Quercus*. To this Hasskarl, Neue Schlüssel (1866) 54, refers t. 56, but this is certainly due to a typographical error, as on the preceding page the plate is properly cited under *Quercus molucca*.

## ULMACEAE

## CELTIS Tournefort

**CELTIS PHILIPPENSIS** Blanco Fl. Filip. (1837) 197.

*Sirifolia* Rumph. Herb. Amb. 3: 64, t. 36.

*Sirifolia litorea* Rumph. Herb. Amb. 3: 64, t. 37.

Possibly two species are represented by the forms Rumphius described, but they are at least of the same genus. The figure representing *Sirifolia* presents a seedling and a leafy branch only, but the one representing *Sirifolia litorea*, a branch in fruit, is a very good representation of *Celtis philippensis* Blanco. *Sirifolia* was erroneously reduced by Henschel, Vita Rumph. (1833) 155, to *Piper malamiris* Linn., while Hasskarl, Neue Schlüssel (1866) 51, thought that it might be *Cocculus angustifolius* Hassk. Teysmann, quoted by Hasskarl, placed it in *Solenostigma*=*Celtis*, where it certainly belongs. *Sirifolia litorea* Rumph., which more certainly represents *Celtis philippensis* Blanco than the preceding, was thought by Hasskarl, Neue Schlüssel (1866) 51, to be possibly the same as *Cocculus laurifolius* DC., which is an entirely erroneous disposition of it. Hasskarl also quotes Teysmann's opinion that it was a species of *Solenostigma*=*Celtis*. If it is not *Celtis philippensis* Blanco, which is widely distributed in the Philippines and extends to northeastern Australia, it at least represents a very closely allied form.

## TREMA Loureiro

**TREMA AMBOINENSIS** (Willd.) Blume Mus. Bot. 2 (1856) 61 quoad syn., excl. descr.!

*Celtis amboinensis* Willd. Sp. Pl. 4<sup>2</sup> (1805) 997.

*Sponia amboinensis* Decne. in Nuov. Ann. Mus. Paris 3 (1834) 498.

*Trema virgata* Blume Mus. Bot. 2 (1856) 59.

*Sponia virgata* Planch. in Ann. Sci. Nat. III 10 (1848) 316.

*Cortex piscatorium* Rumph. Herb. Amb. 4: 125, t. 61.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb.* 328, November 5, 1913, in light forests, altitude about 100 meters, locally known as *rufut*.

Hasskarl, *Neue Schlüssel* (1866) 84, suggests that *Cortex piscatorium* may be *Sponia timorensis* Decne., which is the only previously suggested reduction of the Rumphian description and figure. *Sponia timorensis* Decne.=*Trema timorensis* Blume is manifestly closely allied to *Trema virgata* Blume=*Trema amboinensis* as here interpreted (not of other authors), which Lauterbach\* confines to Timor Island, with the var. *pallida* (Blume) Lauterb. in Amboina. The Rumphian figure and description are manifestly applicable to *Trema virgata* Blume, the figure presenting equilateral leaves which are not cordate at the base and lax inflorescences, while the description definitely states that the leaves are: "ad tactum rugosa, sed non Lanuginosa." The actual Amboina specimen cited above, presents a form with rather small leaves, but otherwise agreeing very closely with the figure.

As to the synonymy given above, it is to be noted that *Sponia amboinensis* Decne.=*Trema amboinensis* Blume was based on *Celtis amboinensis* Willd., and Willdenow's description is very definitely applicable to *Trema virgata* Blume, not to *Trema amboinensis* as currently interpreted. The type was a specimen from Amboina, and the leaves are very definitely described as "scabriuscula" with no mention of the indumentum so characteristic of *Trema amboinensis* auct., while they are also very definitely described as equilateral at the base; in fact this character is the one on which the species was primarily distinguished from its congeners. It is very evident that *Trema amboinensis* of all modern authors is not the same as *Celtis amboinensis* Willd. on which it was manifestly based, but the type has been consistently misinterpreted. *Trema amboinensis* of modern authors should be reduced to *Trema orientalis* (Linn.) Blume, at least as a variety; while *Trema virgata* Blume, generally recognized as a valid species, becomes a synonym of the true *Trema amboi-*

\* Engl. Bot. Jahrb. 50 (1913) 317.

*nensis* (Willd.) Blume (*Celtis amboinensis* Willd.). Doctor Lauterbach, in answer to my query regarding the identity of *Celtis amboinensis* Willd., writes from Breslau as follows: "Das Originalexemplar von *Celtis amboinensis* im Willdenow Herbar ist von den Herrn Professoren Volkens und Gilg mit *Trema orientalis* var. *amboinensis* Lauterb. verglichen worden. Das-selbe stimmt mit derselben *nicht* überein, entspricht dagegen meiner *Trema virgata* Bl. var. *scabra* (Bl.) Ltb."

## MORACEAE

### MORUS Linnaeus

**MORUS ALBA** Linn. Sp. Pl. (1753) 986.

*Morus indica* Linn. Sp. Pl. (1753) 986.

*Morus indica* Rumph. Herb. Amb. 7: 8, t. 5.

The form described and figured by Rumphius is the one described by Linnaeus as *Morus indica* Linn. and was reduced by Linnaeus to this species in his Syst. ed. 10 (1759) 1266. This disposition of it has been accepted by all authors who have had occasion to cite the Rumphian illustration. *Morus indica* Linn., however, does not appear to be specifically distinct from *Morus alba* Linn.

### BROUSSONETIA L'Héritier

**BROUSSONETIA PAPYRIFERA** Vent. Tabl. Regn. Veg. 3 (1794) 547.

*Frutex lintearius* Rumph. Herb. Amb. 4: 114, t. 53.

This reduction was made by Henschel, Vita Rumph. (1833) 165, and is apparently the correct disposition of *Frutex lintearius*. The material on which the figure and the description were based was from Celebes. The figure is poor and presents only a branch with leaves; the flowers and the fruits are not described.

### TAXOTROPHIS Blume

**TAXOTROPHIS ILICIFOLIA** Vidal Rev. Pl. Vasc. Filip. (1886) 249.

*Balanostreblus ilicifolia* Kurz in Journ. As. Soc. Beng. 42<sup>1</sup> (1873) 247, t. 19.

*Taxotrophis triapiculata* Gamble Kew Bull. (1913) 188.

*Taxotrophis obtusa* Elm. Leaf. Philip. Bot. 5 (1913) 1813.

*Ulet* Rumph. Herb. Amb. 3: 62, t. 34.

No previous reduction of *Ulet* has been suggested other than Hasskarl's suggestion that it might be an *Antidesma*. It is, however, unquestionably a form of *Taxotrophis ilicifolia* Vidal, as shown by the figure and the description. In regard to the synonymy cited above, *Taxotrophis ilicifolia* Vidal was published



independently of *Balanostreblus ilicifolia* Kurz. Kurz's species has been reported from Celebes by Koorders, and an examination of Koorders's specimens at Buitenzorg convinced me that they were the same as the Philippine *Taxotrophis ilicifolia* Vidal, which lead me to suspect that *Balanostreblus ilicifolia* Kurz and *Taxotrophis ilicifolia* Vidal were one and the same thing. I am indebted to Sir D. Prain, director of the Royal Gardens, Kew, England, for the following memorandum supplied to me under date of June 28, 1916:

The material of *Balanostreblus ilicifolius* Kurz, and *Taxotrophis ilicifolia* Vidal has been compared in accordance with your request of May 9th, with the result that your surmise as to their identity is very probably correct. There is a slight difference in the male catkins which may be of no importance. In the Philippine plant they are very short, while in *Balanostreblus ilicifolius*, even in a young state, they are much longer. *Balanostreblus* Kurz, will therefore have to be reduced to *Taxotrophis* Blume, the anthers of which appear to be inflexed. I might mention that *Taxotrophis triapiculata* Gamble (Kew Bull. 1913, 188) proves to be the same as *Balanostreblus ilicifolius* Kurz.

I am now of the opinion that the recently described *Taxotrophis obtusa* Elm. is also a form of *T. ilicifolia* Vidal.

#### CUDRANIA Trécul

CUDRANIA JAVANENSIS Tréc. in Ann. Sci. Nat. III 8 (1847) 123.

*Trophis spinosa* Blume Bijdr. (1825) 489, non Roxb.

*Batis spinosa* Roxb. Hort. Beng. (1814) 71 (type!), non Fl. Ind. ed 2, 3 (1832) 762.

*Cudranus rumphii* Thw. Enum. Pl. Ceyl. (1861) 262.

*Maclura amboinensis* Blume Mus. Bot. 2 (1849) 83.

*Cudranus amboinensis* Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 290.

*Cudranus spinosus* O. Kuntze Rev. Gen. Pl. 2 (1891) 623.

*Cudrania spinosa* Hochr. in Bull. N. Y. Bot. Gard. 6 (1910) 489.

*Cudranus bimanus* Rumph. Herb. Amb. 5: 22, t. 15, f. 2.

*Cudranus amboinicus* Rumph. Herb. Amb. 5: 22, t. 15, f. 1.

*Cudranus amboinicus silvestris* Rumph. Herb. Amb. 5: 25, t. 16.

Not represented in our Amboina collections. The three "species" described and figured by Rumphius are apparently all referable to *Cudrania javanensis* Tréc., which name I interpret as the oldest valid one for the species. *Cudranus bimanus* Rumph. is the type and whole basis of *Batis spinosa* Roxb. as published in the Hortus Bengalensis (1814) 71,\* but I consider the name to be invalidated in *Cudrania* by *C. spinosa* (Blume) Hochr. The species later described by Roxburgh under this name is entirely different from *Cudrania javanensis* Tréc.

\* See C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 415.

*Trophis spinosa* Roxb. as published by Willdenow, Sp. Pl. 4 (1805) 734, to which *Cudranus bimanus* Rumph. was also reduced, is *Plecosperrum spinosum* Tréc. Retz. Obs. 5 (1789) 30, reduced it to *Trophis aspera* Retz. with doubt, where it manifestly does not belong. Loureiro, Fl. Cochinch. (1790) 548, discussed the form figured on t. 16 under *Morella rubra* Lour. = *Myrica nagai* Thunb., which led Poiret to cite it under *Ascarina rubra* Poir., in Lam. Encycl. Suppl. 1 (1810) 475. The figures given by Rumphius have been cited under one or another of the various synonyms listed above.

#### ARTOCARPUS Forster

##### ARTOCARPUS INTEGRAL (Thunb.) comb. nov.

*Radermachia integra* Thunb. in Vet. Akad. Handl. Stockh. (1776) 254.

*Artocarpus integrifolia* Linn. f. Suppl. (1781) 412.

*Polyphema jaca* Lour. Fl. Cochinch. (1790) 546.

*Artocarpus jaca* Lam. Encycl. 3 (1789) 209.

*Soccus* (*Saccus*) *arboreus major* Rumph. Herb. Amb. 1: 104, t. 30.

The common jak fruit is well figured by Rumphius. Both t. 30 and the next species, t. 31, were reduced to *Artocarpus integrifolia* Linn. f. in the original description of that species, which was, however, essentially based on *Radermachia integra* Thunb. Following the rule of priority, I have here accepted Thunberg's specific name.

##### ARTOCARPUS CHAMPEDEN (Lour.) Spreng. Syst. 3 (1826) 804.

*Polyphema champeden* Lour. Fl. Cochinch. (1790) 547.

*Artocarpus polyphema* Pers. Syn. 2 (1805) 531.

*Soccus* (*Saccus*) *arboreus minor* Rumph. Herb. Amb. 1: 107, t. 31.

The Rumphian species was cited by Loureiro in the original description of *Polyphema champeden* Lour., which is the basis of both *Artocarpus polyphema* Pers. and *A. champeden* Spreng. The figure has been cited by several authors under *Artocarpus integrifolia* Linn. f. or as a variety of that species. The species commonly called *Artocarpus polyphema* Pers., here, following priority, called *Artocarpus champeden* Spreng., is manifestly the one intended by Rumphius.

##### ARTOCARPUS COMMUNIS Forst. Char. Gen. (1776) 101.

*Radermachia incisa* Thunb. in Vet. Akad. Handl. Stokh. (1776) 254.

*Artocarpus incisa* Linn. f. Suppl. (1781) 411.

*Soccus lanosus* Rumph. Herb. Amb. 1: 110, t. 32.

*Soccus granosus* Rumph. Herb. Amb. 1: 112, t. 33.

*Soccus lanosus* and *Soccus granosus* are respectively the seedless and seeded forms of the breadfruit, corresponding to the forms described by Blanco as *Artocarpus rima* Blanco and *A.*

*camansi* Blanco. They are both referable to *Artocarpus communis* Forst. as that species is currently interpreted. Both, together with *Soccus silvestris* Rumph., were reduced to *Artocarpus incisa* Linn. f. i. the original description of that species, which is typified by *Radermachia incisa* Thunb.

**ARTOCARPUS ELASTICA** Reinw. ex Blume Bijdr. (1825) 481.

*Soccus silvestris* Rumph. Herb. Amb. 1: 114, t. 34?

Not represented in our Amboina collections. This has been reduced to *Artocarpus communis* Forst. (*A. incisa* Linn. f.) by several authors and may be a sylvan form of that species, or it may prove to be referable to *Artocarpus elastica* Reinw., where it was placed by Teysmann as quoted by Hasskarl, Neue Schlüssel (1866) 16.

**ARTOCARPUS RETICULATA** Miq. Ann. Mus. Bot. Lugd. Bat. 3 (1867) 213.

*Novella cinerea* Rumph. Herb. Amb. 2: 227?

AMBOINA, Waë, *Robinson Pl. Rumph. Amb. 173*, November 26, 1913, along the seashore, locally known as *mulewan*.

The specimen agrees quite closely with Miquel's description of *Artocarpus reticulata*, but its identity with *Novella cinerea* Rumph. is rather problematical.

**ARTOCARPUS FRETISSI** Teysm. & Binn. ex Hassk. in Abhandl. Naturf. Gesellsch. Halle 9 (1866) 189 (Neue Schlüssel 47) (type!).

*Metrosideros spuria* I, mas Rumph. Herb. Amb. 3: 26, t. 13, f. A.

A species of entirely doubtful status, to be interpreted from the description and figure given by Rumphius. As published, *Artocarpus fretissi* Teysm. & Binn. is typified wholly by the reference to Rumphius, as no description of the species was published by Teysmann and Binnendyck; the name does not appear in Index Kewensis. It is possible that the specimen intended by Teysmann and Binnendyck to represent the species is the one collected in Amboina by De Fretes and cited by Miquel, Ann. Mus. Bot. Lugd. Bat. 3 (1867) 213, under *Artocarpus lakoocha* Roxb.

**ARTOCARPUS** sp.

*Metrosideros spuria* II femina Rumph. Herb. Amb. 3: 27, t. 13, f. B.

The description and figure are apparently those of an *Artocarpus*, but a further determination of its status is impossible at this time from the material and data available.

**ARTOCARPUS** sp.

*Soccus silvestris celebicus* Rumph. Herb. Amb. 1: 115.

The description is hardly sufficient to warrant an attempt

at determining the status of this form. Henschel's suggestion that it might be *Artocarpus lakoocha* Roxb. is not tenable.

# ARTOCARPUS sp.

*Caju bandaa* Rumph. Herb. Amb. 1: 109.

As to the reference to Rheede this is *Artocarpus hirsuta* Lam., but the Javan plant discussed must be a different species, and its status is indeterminable at this time.

# ANTIARIS \* Leschenault

**ANTIARIS TOXICARIA** (Pers.) Lesch. in Ann. Mus. Paris 16 (1810) 478.

*Ipo toxicaria* Pers. Syn. 2 (1807) 566.

*Arbor toxicaria mas* Rumph. Herb. Amb. 2: 263, t. 87.

This is the famous upas tree, and it is manifestly the form commonly known as *Antiaris toxicaria* Lesch. *Arbor toxicaria* Rumph. was reduced to *Ipo toxocaria* Pers. in the original description of the genus and species.

The form described by Rumphius as *Arbor toxicaria femina* is probably referable here. Blume has placed it under *Antiaris innoxia* Bl., which is a synonym of *A. toxicaria* Lesch.

# FICUS Linnaeus

**FICUS RACEMIFERA** Roxb. Hort. Beng. (1814) 66 (type!).

*Ficus amboinensis* Kostel. Allgem. Med.-Pharm. Fl. 2 (1833) 408 (type!).

*Ficus nodosa* Teysm. & Binn. in Nat. Tijdschr. Ned. Ind. 29 (1867) 245.

*Caprificus amboinensis esculenta latifolia* Rumph. Herb. Amb. 3: 145, t. 93.

AMBOINA, Gelala and vicinity of the town of Amboina, *Robinson Pl. Rumph. Amb. 181*, July and August, 1913, along streams at low altitudes, locally known as *gondal*.

The Rumphian species was originally reduced by Linnaeus through error to *Ficus benghalensis* Linn., in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124. Loureiro, Fl. Cochinch. (1790) 665, discusses it under *Ficus auriculata* Lour., which, according to his description, is an entirely different species. It is the type and whole basis of *Ficus racemifera* Roxb. as originally published in the Hortus Bengalensis (1814) 66, by citation of the Rumphian figure, but is not the form later described by Roxburgh, Fl. Ind. ed. 2, 3 (1832) 560 (= *Ficus variegata* Blume), where the reference to Rumphius is repeated. It is also the type of *Ficus amboinensis* Kostel., which thus becomes a synonym of *Ficus racemifera* Roxb. The type of

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\* Retained name, Vienna Code; *Ipo* Pers. (1807) is older.

*Ficus nodosa* Teysm. & Binn. was from Amboina. The figure given by Rumphius is decidedly poor, and from it alone the status of the species is indeterminable; in connection with Amboina material, however, it is clearly the species as here interpreted.

**FICUS MOSELEYANA** King in Ann. Bot. Gard. Calcutta 1 (1888) 144, t. 181.

*Caprificus aspera tertia* Rumph. Herb. Amb. 3: 151.

AMBOINA, Mahija, *Robinson Pl. Rumph. Amb. 181*, August 7, 1913, margins of forests, altitude about 250 meters, locally known as *koti* and *gohi*.

There is some doubt as to the correctness of this reduction of the Rumphian name, for the form described as *Caprificus aspera III* may be properly referable to *Ficus wassa* Roxb.

**FICUS WASSA** Roxb. Fl. Ind. ed. 2, 3 (1832) 539.

*Caprificus aspera latifolia* Rumph. Herb. Amb. 3: 150, t. 94.

*Caprificus aspera angustifolia* Rumph. Herb. Amb. 3: 151.

AMBOINA, Soja, Elephant River, and town of Amboina, *Robinson Pl. Rumph. Amb. 175, 176, 177*, July, August, and September, 1913, from sea level to an altitude of 400 meters, locally known as *gohi*.

Roemer and Schultes erroneously reduced the Rumphian species to *Ficus symphitifolia* Lam.; Pritzel erroneously referred it to *Ficus glomerata* Roxb.; and Haskarl, Neue Schlüssel (1866) 60, thought that it might be *Covella hispida* Miq. The type of *Ficus wassa* Roxb. was a specimen cultivated in the botanic garden at Calcutta, originating in the Moluccas, and Roxburgh states in the original description: "Wassa of the Malayas, and probably *Caprificus aspera* Rumph. Amb. III t. 94." The specimens agree closely with the description of Rumphius and of Roxburgh, but the plate given by Wight, Ic. t. 666, presents a specimen with much more prominently toothed leaves than our Amboina material and, for that matter, than Roxburgh's description calls for. The receptacles are both axillary and solitary and on short tubercle-like racemes on the branches and trunk. *Wassa* is one of the native names cited by Rumphius for this species.

**FICUS SEPTICA** Burm. f. Fl. Ind. (1768) 226.

*Ficus leucantatoma* Poir. in Lam. Encycl. Suppl. 2 (1811) 654.

*Ficus septica* Rumph. Herb. Amb. 3: 153, t. 96.

AMBOINA, Elephant River, near the town of Amboina, and Paso, *Robinson Pl. Rumph. Amb. 189*, July and October, 1913, locally known as *siripopa*.

The specimen agrees entirely with Rumphius's figure and description, and also with *Ficus leucantatoma* Poir. as currently

interpreted. *Ficus septica* Burm. f. has been quite overlooked by recent authors, but I believe that this name should be adopted in place of Poiret's. The Rumphian figure and description have been cited under *Ficus septica* Burm. f., by Loureiro, Lamarck, Vahl, Roemer and Schultes, Henschel, Kosteletzky, Walpers, Pritzel, and Miquel [Fl. Ind. Bat. 1<sup>2</sup> (1858) 311], but the name is not included in the later writings of Miquel on *Ficus* [Ann. Mus. Bot. Lugd. Bat. 3 (1867) 260–300], nor by King in his monumental work on the species of *Ficus* of the Indo-Malayan region [Ann. Bot. Gard. Calcutta 1 (1888) 1–185, t. 1–232]. In the original description Burman f. first cited the Rumphian synonym, taking his specific name from Rumphius, followed by a citation of *Handur-aku* Rheede, Hort. Malabar. 3: 77, t. 59, the citation of the Javanese name *siri bipar*, and the statement "Habitat in India;" it seems to be quite evident that he had a Javan specimen.

**FICUS ALTISSIMA** Blume Bijdr. (1825) 455.

*Varinga latifolia* Rumph. Herb. Amb. 3: 127, t. 84 bis.

This is not represented in our Amboina collections. It was originally reduced by Linnaeus to *Ficus racemosa* Linn., in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124, where it certainly does not belong, and later, Sp. Pl. ed. 2 (1763) 1515, was placed as a variety of *Ficus indica* Linn., which it certainly does not represent, no matter whether the latter be interpreted from the occidental or the oriental references. Several authors followed Linnaeus in citing *Varinga latifolia* Rumph. under *Ficus indica* Linn., and Roxburgh, Fl. Ind. ed. 2, 3 (1832) 539, states "the figure very bad" (i. e. for *Ficus indica* Linn.). Vahl, Enum. 2 (1805) 189, erroneously places it under *Ficus cotoneaefolia* Vahl. The figure is not good, and the data given in the description indicate that it is greatly reduced, so that it somewhat resembles *Ficus gelderi* Miq. The description, however, applies very closely to *Ficus altissima* Blume and certainly represents this species or a very closely allied one.

**FICUS PUNCTATA** Thunb. Ficus (1786) 9.

*Crusta arborum minor* Rumph. Herb. Amb. 5: 84, t. 45.

AMBOINA, Amahoesoe and Hoetoemoeri road, *Robinson Pl. Rumph. Amb.* 182, August and September, 1913, climbing on trees, altitude 4 to 100 meters, locally known as *tali oit*.

No previous reduction of this Rumphian species has been suggested, other than Hasskarl's reference of it to the genus *Ficus*. The figure, the description, and the Amboina specimen cited

above, all manifestly represent a form of the widely distributed *Ficus punctata* Thunb. The forms described in this chapter as *Crusta arborum* II alba, III odorata, and IV minima, with the possible exception of the last, are species of *Ficus*, apparently all different from *Ficus punctata* Thunb., but their more exact status is quite indeterminable from the data given by Rumphius.

**FICUS CONORA** King in Ann. Bot. Gard. Calcutta 1 (1888) 103, t. 131.

*Caprificus viridis major* Rumph. Herb. Amb. 3: 152, t. 85.

AMBOINA, Way tommo and Hitoe lama, *Robinson Pl. Rumph. Amb.* 186, 187, August and October, 1913, in forests, ascending to an altitude of 20 meters, locally known as *mussor*.

The figure is a good representation of *Ficus conora* King, which is found in the Philippines, Ternate, and New Guinea; and the specimens agree with the figure, with the description, and also in the native name as cited by Rumphius. Blume erroneously reduced it to *Ficus ribes* Reinw., an allied species with smaller leaves and very much smaller receptacles. Henschel erroneously places it under *Ficus hispida* Blume, while Miquel thought that it might be *Covellia congesta* Miq., perhaps from Roxburgh's discussion of the Rumphian figure under *Ficus congesta* Roxb., Fl. Ind. ed. 2, 3 (1832) 560.

**FICUS RUMPHII** Blume Bijdr. (1825) 437.

*Ficus cordifolia* Roxb. Fl. Ind. ed. 2, 3 (1832) 548, non Blume.

*Arbor conciliorum* Rumph. Herb. Amb. 3: 142, t. 91, 92.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb.* 180, November 5, 1913, along the seashore.

*Arbor conciliorum* Rumph. was originally reduced by Linnaeus to the allied *Ficus religiosa* Linn., in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1315, Sp. Pl. ed. 2 (1763) 1514. Blume, however, placed it under *Ficus rumphii* Bl. in the original description of that species, and Roxburgh likewise cites it in the original description of *Ficus cordifolia* Roxb. It was erroneously placed by Roemer and Schultes under *Ficus populnea* Willd., an American species.

**FICUS BENJAMINA** Linn. Mant. 1 (1767) 129.

*Varinga parvifolia* Rumph. Herb. Amb. 3: 139, t. 90.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 179, October 31, 1913, along the seashore, locally known as *waringin*.

*Ficus benjamina* Linn., as originally published, manifestly includes more than one species, but I have here followed the current interpretation of it. *Varinga parvifolia* Rumph. was

quoted as a synonym in the original description of the species, but is not the type.

Two forms are described by Rumphius in this chapter; namely, *Varinga parvifolia alta*, which is the one figured and here interpreted as *Ficus benjamina*, and *Varinga parvifolia II humilis*, smaller in size and with somewhat larger leaves and larger fruits than the former. Blume thought that this might be *Ficus haemato-carpa* Blume, while Hasskarl placed it with doubt under *Urostigma neglectum* Miq. Its exact status is indeterminable from the data and the material at present available for study.

**FICUS TREMATOCARPA** Miq. Ann. Mus. Bot. Lugd. Bat. 3 (1867) 224.

*Grossularia domestica* Rumph. Herb. Amb. 3: 136, t. 87, 88.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb.* 178, October 7, 1913, in light forests, altitude about 80 meters, locally known as *waringin daun alus*. I am disposed to refer to the same species *Rel. Robins.* 1680, 1681, 1682, from Waë, Paso, and Batoe gadjah, all indicated as *waringin*.

*Grossularia domestica* Rumph. was erroneously referred by Linnaeus to *Ficus racemosa* Linn., in *Stickman Herb. Amb.* (1754) 13, *Amoen. Acad.* 4 (1759) 124; the only other suggested reduction is Miquel's doubtful reference of it to *Ficus altimeraloo* Roxb. The probabilities are very great that it is here correctly referred to *Ficus trematocarpa* Miq., the type of which was from Amboina, although the status of Miquel's species is doubtful. King has reduced it with several other species, including the Philippine *Ficus philippinensis* Miq., to *Ficus decaisneana* Miq., which disposition of it is perhaps correct; but if King's conception of the specific limits be correct, then it is probable that several other described Philippine forms will have to be reduced, such as *Ficus inaequifolia* Elm., *F. confusa* Elm., *F. driveri* Elm., *F. setibracteata* Elm., and *F. magnifica* Elm.

**FICUS ADENOSPERMA** Miq. Ann. Mus. Bot. Lugd. Bat. 3 (1867) 233.

*Caprificus viridis minor* Rumph. Herb. Amb. 3: 152.

AMBOINA, Way tommo, and Roemah tiga, *Robinson Pl. Rumph. Amb.* 184, 185, August, 1915, along streams at low altitudes, locally known as *kaju musor*.

The specimens agree fairly well with Rumphius's description and perfectly with that of Miquel. The type of *Ficus adenosperma* Miq. was from Amboina.

**FICUS AMPELOS** Burm. f. *Fl. Ind.* (1768) 226 p. p.

*Folium politorium vulgare fruticosum* Rumph. Herb. Amb. 4: 128, t. 63.

This particular form is not represented in our Amboina collec-



tions, but the plant figured and described by Rumphius is apparently the same as the Javan form currently referred to *Ficus ampelos* Burm. f. The Rumphian description and figure, cited by Burman f. in the original description of *Ficus ampelos* Burm. f., should probably typify the species. It has been reduced to *Ficus politoria* Lam., but Lamarck's species, based on specimens from Madagascar, is certainly distinct from the Malayan form. It has also been erroneously referred to *Ficus parasitica* Roth, and to *F. exasperata* Roxb.

**FICUS CORONATA** Reinw. ex Blume Bijdr. (1825) 470.

*Ficus obscura* Blume l. c. 474.

*Folium politorium arborescens* Rumph. Herb. Amb. 4: 128.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb. 183*, October 18, 1913, borders of clearings, altitude about 70 meters, locally known as *daun plas*.

This form, with very scabrid, somewhat inequilateral leaves, certainly represents *Folium politorium arborescens* Rumph. I cannot distinguish it from *Ficus coronata* Reinw. (*F. obscura* Blume). The form described by Rumphius, l. c., as *Folium politorium flagellare* is probably referable to one or the other of the above species with harsh leaves.

**FICUS FORSTENII** Miq. Ann. Mus. Bot. Lugd. Bat. 3 (1867) 214, 285.

*Varinga supa* Rumph. Herb. Amb. 3: 135, t. 86?

Nothing resembling this form occurs in our Amboina collections. The figure very strongly resembles both *Ficus pilosa* Reinw. and *F. forstenii* Miq., and the form described by Rumphius is probably referable to one or the other of these species. Miquel thought that it might represent *Urostigma pilosum* Miq. = *Ficus pilosa* Reinw., but it seems to me that it more closely resembles *Ficus forstenii* Miq. Hamilton referred it with doubt to *Ficus gonia* Ham., and Henschel quite wrongly refers it to *Ficus citrifolia* Willd. The form described by Rumphius as *Varinga pelal*, in the same chapter, may be referable to *Ficus forstenii* Miq. or may represent a different species.

**FICUS** sp. aff. **F. CALOPHYLLA** Blume.

*Varinga repens* Rumph. Herb. Amb. 3: 134, t. 85.

Nothing at all agreeing with *Varinga repens* Rumph. is presented by our Amboina collections. The figure and the description, however, apply closely to the Javan *Ficus calophylla* Blume and the Philippine *Ficus pachyphylla* Merr. and certainly represent a species very closely allied to both and perhaps identical with one of them. *Varinga repens* Rumph. was erroneously reduced by Linnaeus to *Ficus pumila* Linn., in Stickman

Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1315, Sp. Pl. ed. 2 (1763) 1515. Likewise it was erroneously reduced by Lamarck, with doubt, to *Ficus pyrifolia* Lam.; by Vahl to *Ficus rubra* Vahl; and by Blume to *Ficus microcarpa* Linn. f. var. *litoralis* Blume. Miquel thought that it might represent a species allied to *Ficus manok* Miq.

**FICUS RECURVA** Blume Bijdr. (1825) 457.

*Rudens silvaticus parvifolius* Rumph. Herb. Amb. 5 : 80, t. 43, f. 2.

From the description and figure I have little doubt in referring this to *Ficus recurva* Blume. A more comprehensive exploration of Amboina, however, may yield material that will modify this reduction.

#### FORMS OF FICUS, DESCRIBED BY RUMPHIUS, OF DOUBTFUL STATUS

*Grossularia domestica longifolia* Rumph. Herb. Amb. 3 : 136.

*Grossularia domestica parvifolia* Rumph. Herb. Amb. 3 : 136.

Both are perhaps forms of *Ficus trematocarpa* Miq. to which *Grossularia domestica* Rumph. pertains.

*Varinga funicularis* Rumph. Herb. Amb. 3 : 137.

*Varinga nounouck* Rumph. Herb. Amb. 3 : 137 (from Madagascar).

*Grossularia silvestris* Rumph. Herb. Amb. 3 : 138, t. 89.

This form was erroneously placed by Lamarck under *Ficus racemosa* Linn., and by Henschel under *Ficus tsjela* Ham. Miquel thought that it might be near *Ficus albinervia* Miq. It is not represented in our Amboina collections.

*Arbor eusanda* Rumph. Herb. Amb. 3 : 141.

*Caprificus amboinensis esculenta angustifolia* Rumph. Herb. Amb. 3 : 146.

Apparently a form allied to *Ficus racemifera* Roxb., as interpreted above, and to *F. variegata* Blume.

*Caprificus amboinensis esculenta silvestris* Rumph. Herb. Amb. 3 : 148.

*Caprificus amboinensis esculenta s. hahuol altera* Rumph. Herb. Amb. 3 : 148.

*Caprificus s. sycomorus chartaria (amboinensis)* Rumph. Herb. Amb. 3 : 149.

*Caprificus s. sycomorus chartaria (javanica)* Rumph. Herb. Amb. 3 : 149.

*Caju djurang* (e Java) Rumph. Herb. Amb. 3 : 151.

*Ficus septica silvestris* Rumph. Herb. Amb. 3 : 154.

*Ficus septica angustifolia* Rumph. Herb. Amb. 3 : 154.

The last two are perhaps merely forms of *Ficus septica* Burm. f. (*Ficus leucantatoma* Poir.) as interpreted above, to which *Ficus septica* Rumph. pertains.

*Rudens silvaticus latifolius* Rumph. Herb. Amb. 5 : 80, t. 43, f. 1.

A scandent fig, apparently belonging in the group with *Ficus recurva* Blume.

*Rudens silvaticus rugosus* Rumph. Herb. Amb. 5 : 81.

Manifestly a species of *Ficus* and apparently belonging in the same group as the above.

*Rudens silvaticus* IV Rumph. Herb. Amb. 5: 80.

Probably a species of *Ficus*, and perhaps the same plant as that very briefly described as *Gummi susu* Rumph., Herb. Amb. 5: 43.

This list of indeterminable *Ficus* described by Rumphius, for the most part comprises those forms that are very inadequately described. Later some of them may be placed from the study of more specimens and data than are now available, but the list, from the standpoint of nomenclature and synonymy, is of no importance.

#### CONOCEPHALUS Blume

**CONOCEPHALUS AMBOINENSIS** (Zipp.) Warb. in Engl. Bot. Jahrb. 18 (1894) 189.

*Poikilospermum amboinense* Zipp. ex Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1863-64) 203.

*Funis muraenarum latifolia* Rumph. Herb. Amb. 5: 68, t. 36.

AMBOINA, Way tommo, Lateri, and Negri lama, *Robinson Pl. Rumph. Amb.* 170, 172, August, 1913, climbing over trees at low and medium altitudes; probably referable here also is *Robinson Pl. Rumph. Amb.* 171, from Hitoe lama, November 6, 1913, altitude about 75 meters.

Linnaeus, in Stickman Herb. Amb. (1854) 19, Amoen. Acad. 4 (1759) 129, erroneously referred plate 36, as *Funis convolutus* Rumph., to *Melastoma octandrum* Linn., doubtless by confusion with the species of *Medinilla* figured on the preceding plate. Hasskarl, Neue Schlüssel (1866) 96, quotes Teysmann's opinion that the species figured represents a species of *Conocephalus*. I can see no reason for considering it other than *Conocephalus amboinensis* Warb., which was originally described by Zippel from Amboina material as a monotypic genus, *Poikilospermum amboinense* Zipp.

#### CANNABIS Linnaeus

**CANNABIS SATIVA** Linn. Sp. Pl. (1753) 1027.

*Cannabis indica* Lam. Encycl. 1 (1785) 695.

*Cannabis indica* Rumph. Herb. Amb. 5: 208, t. 77, f. 1.

*Cannabis indica tertia* Rumph. Herb. Amb. 5: 211, t. 77, f. 2.

The plant figured and described by Rumphius as *Cannabis indica* is manifestly the common hemp. It was reduced by Linnaeus to *Cannabis sativa* Linn., in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, but by several of the early authors, following Lamarck, was cited under *Cannabis indica* Lam., a synonym of *C. sativa* Linn. Hasskarl, Neue Schlüssel (1866) 112, makes *Cannabis indica tertia* Rumph. the type of a new variety, *Cannabis sativa* Linn. var. *crispata* Hassk., which, however, is apparently merely a variant of the common hemp.

## URTICACEAE

## LAPORTEA \* Gaudichaud

LAPORTEA AMPLISSIMA (Blume) Miq. Fl. Ind. Bat. 1<sup>2</sup> (1858) 232, Ann. Mus. Bot. Lugd. Bat. 4 (1869) 301.

*Urera amplissima* Blume Mus. Bot. 2 (1859) f. 22 (without description).

*Folium urens latifolium* Rumph. Herb. Amb. 3: 217, t. 141.

AMBOINA, Lateri, Soja, Negri lama, and Halong, *Robinson Pl. Rumph. Amb.* 310, 311, 312, 313, August and September, 1913, in forests and along rocky river banks, altitude 175 to 325 meters, locally known as *polat*, *polot*, and *polat puti*.

Burman f., Fl. Ind. (1768) 205, referred this to *Croton polot* Burm. f., taking his specific name from Rumphius, but describing the species from Javan material. Burman's species has been entirely overlooked by modern botanists and is the species commonly known as *Claoxylon indicum* Hassk., which should now be called *Claoxylon polot* (Burm. f.) (*Croton polot* Burm. f., *Claoxylon indicum* Hassk.). Henschel, followed by Pritzel, erroneously referred the Rumphian species to *Jatropha moluccana* Linn.=*Aleurites moluccana* Willd. Hasskarl, Neue Schlüssel (1866) 69, referred it to *Laportea crenulata* Gaudich., where it certainly does not belong, although he was correct as to the genus. In the original publication of *Urera amplissima* Blume no description is given; the name appears on the plate only. Miquel credits it to Java (*Teysmann*) and the Moluccas (*Zippel*), but in his second consideration of it he cites only Amboina material collected by *Teysmann*, *Zippel*, and *De Fretes*, so that the original citation of *Teysmann*'s specimen, as Javan, is probably an error. J. J. Smith † states: "De voor Java opgegeven *L. amplissima* Miq. is nog niet op Java aangetroffen, doch waarschijnlijk afkomstig van de Molukken."

## LAPORTEA sp.

*Folium urens angustifolium* Rumph. Herb. Amb. 3: 217.

*Folium urens rubrum* Rumph. Herb. Amb. 3: 218.

Both descriptions apparently apply to a single species of *Laportea*, which, from the data given by Rumphius, is perhaps distinct from *Laportea amplissima* Miq. Hasskarl, Neue Schlüssel (1866) 69, thought that *Folium urens rubrum* Rumph.

\* Retained name, Vienna Code; *Urticastrum* Fabr. (1759) is older.

† Koorders & Valetton Bijdr. Boomsoorten Java 12 (1910) 676.

might be *Laportea stimulans* Miq. No. 310, cited above under *Laportea amplissima* Miq., was considered by Doctor Robinson certainly to represent *Folium urens rubrum* Rumph., and if this be correct, then this form described by Rumphius becomes a synonym of *Laportea amplissima* Miq. The leaf measurements given by Rumphius for all three forms are matched by some of the leaves on the specimens cited above.

**LAPORTEA DECUMANA** (Roxb.) Wedd. Monogr. Urt. (1856) 127.

*Urtica decumana* Roxb. Hort. Beng. (1814) 67, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 587.

*Urtica rumphii* Kostel. Allgem. Med.-Pharm. Fl. 2 (1833) 400 (type!).

*Urtica decumana* Rumph. Herb. Amb. 6: 47, t. 20, f. 1.

AMBOINA, Halong and Hitoe lama, *Robinson Pl. Rumph. Amb. 316*, September and October, 1913, along streams and in forests from near sea level to an altitude of 250 meters, locally known as *daun gattal puti* and *daun gattal mera*.

This was originally reduced by Linnaeus, through error, to *Urtica interrupta* Linn., in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134. It has been cited by several authors under *Fleurya interrupta* Gaudich., but the figure does not pertain to this species, and the description only as to *Urtica decumana* III *vulgaris*; see below. Roxburgh cites the Rumphian description and figure in the original description of *Urtica decumana* Roxb., which was based on specimens introduced into the Calcutta Botanic Garden from the Moluccas. The Rumphian figure and description are the basis of *Urtica rumphii* Kostel. The figure is exceedingly poor, but it manifestly belongs with this species rather than with *Fleurya interrupta* Gaudich. I consider that the forms described by Rumphius as I *alba* and II *rubra* represent *Laportea decumana* (Roxb.) Wedd. as here interpreted.

#### **FLEURYA** Gaudichaud

**FLEURYA INTERRUPTA** (Linn.) Gaudich. Bot. Freyc. Voy. (1826) 497.

*Urtica interrupta* Linn. Sp. Pl. (1753) 985.

*Urtica decumana* III *vulgaris* Rumph. Herb. Amb. 6: 48.

AMBOINA, *Robinson Pl. Rumph. Amb. 319*, July 19, 1913, in waste places, town of Amboina, locally known as *daun gattal*.

There is very little doubt as to the correctness of this reduction of *Urtica decumana vulgaris* Rumph. The other plants described in the same chapter, *Urtica decumana alba* and *rubra*, are apparently both *Laportea decumana* Wedd.

## PELLIONIA Gaudichaud

**PELLIONIA SINUATA** (Blume) Boerl. Handl. Kenn. Fl. Nederl. Ind. 3 (1900) 375.

*Procris sinuata* Blume Bijdr. (1825) 511.

*Elatostema sinuatum* Hassk. Cat. Hort. Bogor. (1844) 79.

*Macuerus mas* Rumph. Herb. Amb. 6: 133, t. 58, f. 2.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 320*, July 28, 1913, on coral rocks at low altitudes.

The only previously suggested identification of *Macuerus mas* is Hasskarl's doubtful reference of it to *Elatostema macrophyllum* Brongn., *Neue Schlüssel* (1866) 174. It is certainly not Brongniart's species, but is *Pellionia sinuata* Boerl., at least as that species is interpreted by Robinson, in *Philip. Journ. Sci.* 5 (1910) Bot. 497.

## BOEHMERIA Jacquin

**BOEHMERIA NIVEA** (Linn.) Gaudich. Bot. Freyc. Voy. (1826) 499.

*Urtica nivea* Linn. Sp. Pl. (1753) 985.

*Ramium majus* Rumph. Herb. Amb. 5: 214, t. 79, f. 1.

The plant figured and described is a form of ramie, probably typical *Boehmeria nivea* Gaudich., although possibly the variety *tenacissima* (Gaudich.) Miq. It was first reduced by Linnaeus to *Urtica nivea* Linn., in *Stickman Herb. Amb.* (1754) 21, *Amoen. Acad.* 4 (1759) 130, *Sp. Pl. ed. 2* (1763) 1398, and has been cited by various authors under *Procris nivea* Gaudich. and *Boehmeria tenacissima* Gaudich., synonyms of *Boehmeria nivea* Gaudich. Burman f., *Fl. Ind.* (1768) 197, erroneously referred it to *Urtica aestuans* Linn. in which he was followed by Lamarck, Persoon, and Henschel.

## POUZOLZIA Gaudichaud

**POUZOLZIA ZEYLANICA** (Linn.) Benn. Pl. Jav. Rar. (1838) 67.

*Parietaria zeylanica* Linn. Sp. Pl. (1753) 1052.

*Parietaria indica* Linn. Mant. 1 (1767) 128.

*Pouzolzia indica* Gaudich. Bot. Freyc. Voy. (1826) 503.

*Herba memoriae* Rumph. Herb. Amb. 6: 29, t. 12, f. 2.

AMBOINA, Batoe merah and vicinity of the town of Amboina, *Robinson Pl. Rumph. Amb. 324, 325*, July, 1913, in sago swamps and along roadsides at low altitudes.

*Herba memoriae* Rumph. is manifestly a form of *Pouzolzia indica* (Linn.) Benn. Burman f., *Fl. Ind.* (1768) 221, refers it to *Parietaria indica* Burm. f., published independently of *P. indica* Linn. It has been cited as a synonym of *Pouzolzia indica* Gaudich. by several authors, for example, Presl, Bennett, Blume,

and Miquel, but is here placed under what is manifestly its oldest valid specific name, *Pouzolzia zeylanica* (Linn.) Benn. Roxburgh, Fl. Ind. ed. 2, 3 (1832) 583, erroneously cites the Rumphian illustration under *Urtica tuberosa* Roxb.=*Pouzolzia tuberosa* Wight.

#### PIPTURUS Weddell

PIPTURUS ARGENTEUS (Forst.) Wedd. in DC. Prodr. 16<sup>1</sup> (1869) 235<sup>29</sup>.

*Urtica argentea* Forst. Prodr. (1786) 65.

*Morus paniculata* Roxb. Hort. Beng. (1814) 67 (type!).

*Perlarius* 1 Rumph. Herb. Amb. 4: 120, t. 56.

AMBOINA, Lateri, Batoe merah, and Amahoese, *Robinson Pl. Rumph. Amb.* 317, 318, July and August, 1913, in forests and thickets on limestone formations, altitude 20 to 150 meters, locally known as *daun kes* and *daun kesi*.

*Perlarius* as figured and described by Rumphius is the whole basis of *Morus paniculata* Roxb. as originally published in the Hortus Bengalensis (1814) 67 by citation of the Rumphian figure; see C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 414. Roxburgh's species, later described from material originating in the Moluccas, Fl. Ind. ed. 2, 3 (1832) 599, has been reduced to *Pipturus velutinus* Wedd.=*P. incanus* (Blume) Wedd., a species difficult to distinguish from *P. argenteus* Wedd.; but wherever placed, it will in turn place the synonyms *Pipturus paniculatus* Miq. and *Botrymorus paniculata* Miq. If, however, a critical revision of the genus should show that the Amboina material is *Pipturus incanus* Wedd. rather than *P. argenteus* Wedd., then Roxburgh's specific name will take precedence over *Pipturus incanus* Wedd.

*Perlarius latifolius*, described in this chapter, is *Robinsoniodendron ambiguum* Merr. (see p. 204). *Perlarius parvifolius* may be a variant of *Pipturus argenteus* Wedd. or may refer to some entirely different genus and species; its status is quite uncertain.

PIPTURUS REPANDUS (Blume) Wedd. in Arch. Mus. Paris 9 (1857) 448.

*Urtica repanda* Blume Bijdr. (1825) 501.

Aylaun nya femina Rumph. Herb. Amb. 5: 67.

AMBOINA, Batoe gadjah and Batoe merah River, *Robinson Pl. Rumph. Amb.* 321, 322, August, 1913, climbing over trees, ascending to an altitude of 250 meters.

*Aylaun nya femina* Rumph. is described in the chapter with *Funis muraenarum*=*Medinilla*. The description is poor, but so far as it goes it applies fairly closely to the specimens here referred to *Pipturus repandus* Wedd.

## OREOCNIDE Miquel

(Villebrunea Gaudichaud)

OREOCNIDE RUBESCENS (Blume) Miq. Ann. Mus. Bot. Lugd. Bat. 4 (1869) 306.

*Urtica rubescens* Blume Bijdr. (1825) 506.*Villebrunea rubescens* Blume Mus. Bot. 2 (1856) 167.*Lignum aquatile* Rumph. Herb. Amb. 4: 135, t. 70.AMBOINA, Batoe merah River, *Robinson Pl. Rumph. Amb. 315*, September 24, 1913, on river banks, altitude about 40 meters.

Hasskarl, Neue Schlüssel (1866) 86, thought that *Lignum aquatile* Rumph. might be *Oreocnide major* Miq. or *O. silvatica* Miq.; according to J. J. Smith the former is a synonym of *Villebrunea rubescens* Blume=*Oreocnide rubescens* Miq., and the latter is a variety of it. The Amboina specimens, which agree closely with the figure, but not very well with the description, appear to be fairly typical of *Oreocnide rubescens* Miq. Rumphius's description is short and rather poor and may include more than this species.

As to the genera *Oreocnide* Miquel and *Villebrunea* Gaudichaud, on a strict interpretation the former has priority; see C. B. Robinson in Philip. Journ. Sci. 6 (1911) Bot. 16.

## ROBINSONIODENDRON genus novum

Genus *Maoutiae* affinis, differt perianthium ♀ distincte evolutum, 5-denticulatum.

ROBINSONIODENDRON AMBIGUUM (Wedd.) comb. nov.

*Maoutia ambigua* Wedd. in Arch. Mus. Paris 8 (1855-56) 483; DC. Prodr. 16<sup>1</sup> (1869) 235<sup>33</sup>.*Perlarius I latifolius* Rumph. Herb. Amb. 4: 120.AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 214*, August 24, 1913, on hillsides at low altitudes.

The specimen cited above agrees perfectly with Rumphius's description, as well as with that of *Maoutia ambigua* Wedd., a species known only from Amboina and anomalous in the genus by its distinctly developed pistillate perianth. No previous reduction of *Perlarius I latifolius* Rumph. has been suggested, other than Hasskarl's opinion that it might be a variety of *Perlarius I*, that is, *Pipturus argenteus* Wedd.

In view of the fact that the species is anomalous in *Maoutia*, where it was placed by Weddell, it seems best to establish another genus for it; in *Maoutia* the pistillate perianth is wanting. The generic name I have proposed is selected in



commemoration of Doctor Robinson's work in Amboina and of his critical work on the Philippine representatives of this difficult family.\*

## PROTEACEAE

## HELICIA Loureiro

**HELICIA SERRATA** (R. Br.) Blume in Ann. Sci. Nat. II 1 (1834) 215.

*Rhopala serrata* R. Br. in Trans. Linn. Soc. 10 (1811) 193.

*Arbor vespertilionum* Rumph. Herb. Amb. 7: 17 (p. p., excl. t. 10!).

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 281, October 29, 1913, near the seashore.

*Arbor vespertilionum* Rumph. was first reduced to *Helicia serrata* by Blume, in Ann. Sci. Nat. II 1 (1834) 215. He included also t. 10 with the statement "figura male expressa." The figure is manifestly no *Helicia*, refers to *Arbor vespertilionum* II described on page 17 following the description that does apply to *Helicia*, and is *Schizomeria serrata* Hochr. (see p. 244).

## LORANTHACEAE

## LORANTHUS Linnaeus

**LORANTHUS RUMPHII** sp. nov. § *Heteranthus*.

*Viscum amboinicum album* Rumph. Herb. Amb. 5: 60, t. 33.

AMBOINA, Batoe gadjah and Soja road, *Robinson Pl. Rumph. Amb.* 517 (type), August 4, 1913; Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 516, August 23, 1913, parasitic, altitude 50 to 200 meters, locally known as *bunga manumpang* and *daun manumpang*.

Frutex parasiticus glaber, ramis ramulisque tenuibus, teretibus; foliis oppositis, petiolatis, coriaceis, oblongis ad anguste oblongo-obovatis, obtusis, basi attenuatis, usque ad 8 cm longis. nervis utrinque 3 vel 4, obscuris vel subobsoletis, adscendentibus; inflorescentiis axillaribus, solitariis, usque ad 2 cm longis; floribus cylindraceis, teretibus, gracilis, circiter 2.4 cm longis. 5- vel 6-meris, omnibus sessilibus, in triadibus vel diadibus breviter pedunculatis racemose dispositis.

A parasitic, entirely glabrous shrub, the branches elongated, up to at least 70 cm in length, slender, terete, reddish-brown or dark in color when dry, the younger ones somewhat compressed at the nodes, smooth, the internodes 2 to 4 cm in length. Leaves opposite, coriaceous, olivaceous and rather dull when dry, oblong to narrowly oblong-obovate, 5 to 8 cm long, 1.5 to 3 cm wide, apex rounded to obtuse, base gradually narrowed, attenuate

\* Philippine Urticaceae. *Philip. Journ. Sci.* 5 (1910) Bot. 465-543; 6 (1911) Bot. 1-33, t. 1-3; Philippine Urticaceae II, *ibid.* 299-314.

or cuneate; lateral nerves 3 or 4 on each side of the midrib, ascending, slender, obscure, sometimes nearly obsolete; petioles about 8 mm long. Inflorescences axillary, solitary, about 2 cm long, the flowers slender, about 2.4 cm long, cylindric, orange below, yellowish above, 5- or mostly 6-merous, in racemously arranged triads, the rachis slender, the lateral branchlets bearing the sessile flowers 2 to 4 mm long. Calyx cylindric-ovoid, 2 to 3 mm long, truncate, the subtending bracts broadly ovate, rounded or obtuse, about 1.2 mm long, all the flowers sessile, usually in threes, sometimes in pairs at the apex of each short lateral branch. Petals free to the base, linear, about 1 mm wide, the reflexed portion above the insertion of the filament linear, 6 to 7 mm long. Filaments 4 mm long, the anthers continuous, linear, about 1.2 mm in length. Fruit narrowly ovoid, when dry black and about 6 mm long.

This species is possibly allied to *Loranthus indicus* Desr., but it differs in many characters, notably in its smaller leaves, longer petioles, and shorter, fewer-flowered inflorescences. The type of *Loranthus indicus* Desr. was a specimen collected by Sonnerat in "Îles Indies orientales," but de Candolle, Prodr. 4 (1830) 305, credits it to Timor. Miquel, Fl. Ind. Bat. 1<sup>a</sup> (1856) 820, thought that *Viscum amboinicum album* Rumph. represented a species of *Dendrophthoe* (*Loranthus*) near *D. indica* (Desr.) Miq. or *D. incarnata* (Jack) Miq., but the Rumphian species is no *Dendrophthoe*, as indicated by its entirely free petals.

*Viscum amboinicum* III Rumph. Herb. Amb. 5: 62, very briefly described, is undoubtedly a species of *Loranthus*, but its status cannot be definitely determined from any data at present available. Hasskarl, Neue Schlüssel (1866) 95, thought it might be the same as *Macrosolen macrophyllus* Miq. (*Loranthus macrophyllus* Korth.), but this is entirely improbable, as that species is known only from Sumatra.

#### ELYTRANTHE Blume

##### ELYTRANTHE AMBOINENSIS sp. nov.

*Viscum amboinicum rubrum* Rumph. Herb. Amb. 5: 61?

AMBOINA, Hoetoemoeri road, *Robinson Pl. Rumph. Amb. 515* (type), September 30, 1913, on *Barringtonia* trees, altitude about 350 meters, locally known as *manumpang*.

Frutex epiphyticus glaber, ramis crassis, ramulisque teretibus; foliis oppositis, coriaceis, nitidis, oblongo-ovatis, usque ad 18 cm longis, obtuse acuminatis, basi acutis ad subrotundatis, nervis utrique circiter 8, tenuibus, obscuris; inflorescentiis

axillaribus, solitariis vel fasciculatis, brevibus, pedunculis 2- ad 4-floris, circiter 5 mm longis; floribus 6-meris, circiter 2.5 cm longis, corollae tubo sursum prominente 6-angulato, bracteis late ovatis, circiter 1.5 mm longis, bracteolis paullo minoribus, connatis, integris vel retusis.

A stout, parasitic, glabrous shrub, the branches up to at least 60 cm in length, terete, brownish, somewhat lenticellate, the branchlets smooth, reddish-brown. Leaves opposite, thickly coriaceous, rather pale-greenish when dry, shining, oblong-ovate, or some of the smaller ones oblong-lanceolate, 14 to 18 cm long, 4 to 7 cm wide, base acute to subrounded, apex shortly and broadly blunt-acuminate; lateral nerves about 8 on each side of the midrib, slender, anastomosing, more prominent on the upper than on the lower surface, the reticulations lax; petioles stout, 1 to 1.5 cm long. Inflorescence axillary, of solitary or fascicled, short peduncles up to 5 mm in length, each peduncle bearing at its apex from 2 to 4 short-pedicelled flowers, the peduncles 5 mm long or less, the pedicels about 2 mm in length. Flowers 6-merous, about 2.5 cm long, dark-red below, each subtended by one bract which is broadly ovate, acute, about 1.5 mm long, the bracteoles entirely united or slightly retuse at the apex, nearly as large as the bract. Calyx cylindric, truncate, about 5 mm long. Corolla-tube about 6 mm long, inflated, prominently 6-angled or narrowly 6-winged in the upper one-third, the lobes 6, about 3 mm wide at the base, abruptly narrowed, about 14 mm long and 2 mm wide, thick, acute, spreading or reflexed. Filaments about 6 mm long, attached near the base of the lobes, the anthers continuous, linear, about 4 mm long.

This species is sufficiently well characterized by its opposite, shining, rather large leaves, and especially by its axillary, solitary or fascicled, very short, 2- to 4-flowered peduncles. In *Elytranthe* it is distinguished by its bracteoles being either entirely connate into a single one nearly as large as the bract, or at most merely retuse at the apex.

It is by no means certain that the plant here described represents *Viscum amboinense rubrum* of Rumphius, as his short description does not well conform. Rumphius compares his plant with *Viscum amboinicum album* = *Loranthus rumphii* Merr., with which the present species has little in common. *Viscum amboinense rubrum*, moreover, was parasitic on small trees near the seashore, while *Elytranthe amboinensis* grows at an altitude of about 350 meters. Hasskarl, Neue Schlüssel (1866) 95, suggests that *Viscum amboinicum rubrum* may be the same as *Macrosolen evenius* (Blume) Miq. = *Loranthus*

*evenius* Blume, but in view of the characters of that species and its known distribution this proposed reduction is probably incorrect.

## SANTALACEAE

### SANTALUM Linnaeus

**SANTALUM ALBUM** Linn. Sp. Pl. (1753) 349.

*Sandalum* Rumph. Herb. Amb. 2: 42, t. 11.

The form described by Rumphius as *Sandalum* is probably the true sandal wood, *Santalum album* Linn., at least for most part. *Sandalum* was first reduced by Linnaeus, in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120, Syst. ed. 10 (1759) 1000, Sp. Pl. ed. 2 (1762) 497, to *Santalum album* Linn., which disposition of it has been very generally accepted by succeeding authors. Poiret, in Lamarck Encycl. 6 (1804) 502, suggested that it might be *Sirium myrtifolium* Linn., which is generally cited as a synonym of *Santalum album* Linn. Probably referable here is the form from Celebes indicated by Rumphius as *Sandalum radiceis* Herb. Amb. 2: 46, but there is less reason for considering *Lignum papuanum* III Rumph., l. c. 58, as being identical with *Santalum album* Linn. as Henschel indicates; see Hasskarl, Neue Schlüssel (1866) 28.

### EXOCARPUS LaBillardiére

**EXOCARPUS EPIPHYLLANTHUS** (Linn.) comb. nov.

*Phyllanthus epiphyllanthus* Linn. Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1264 (type!), non Sp. Pl. ed. 2 (1763) 1392.

*Xylophylla longifolia* Linn. Mant. 2 (1771) 221 (type!).

*Phyllanthus ceramicus* Pers. Syn. 2 (1807) 591 (type!).

*Exocarpus ceramicus* R. Br. ex. Spreng. Gesch. 2 (1818) 77; Hensch.

Vita Rumph. (1833) 201.

*Exocarpus phyllanthoides* Endl. Prodr. Fl. Norfolk. (1833) 46?

*Exocarpos ceramica* A. DC. Prodr. 14 (1857) 691 (type!).

*Xylophyllos ceramica* Rumph. Herb. Amb. 7: 19, t. 12.

The present application of *Phyllanthus epiphyllanthus* Linn. is entirely contrary to accepted usage, yet it is unquestionably the correct interpretation of the species. In the Amoen. Acad. 4 (1759) 136, Linnaeus quotes the Rumphian illustration with doubt, but in the same year, Syst. ed. 10 (1759) 1264, he adds a description which is based wholly on Rumphius, as follows: "*Phyllanthus epiphyllanthus*. 2. P. fol. lanceolatis serratis; crenis floriferis. Rumph. amb. 7. t. 12." However, in the second edition of his Species Plantarum (1763) 1392, he discards the Rumphian synonym, adds various others, and describes a plant, a true *Phyllanthus*, from American material. Still later, Mant. 2

(1771) 221, apparently recognizing his error, he proposed a new name for *Phyllanthus epiphyllanthus* of the second edition of the Species Plantarum, calling it *Xylophylla latifolia* Linn. A. de Candolle, Prodr. 14 (1857) 691, considers that *Exocarpos ceramica* A. DC. is distinct from *E. phyllanthoides* Endl., but apparently saw no specimens of the former. *Exocarpus rolfeanus* (O. Kuntze) Merr., in Philip. Journ. Sci. 4 (1910) Bot. 352, is certainly very closely allied to *E. epiphyllanthus* (Linn.) Merr. and may have to be reduced to it. Of the names discussed above, *Xylophylla longifolia* Linn., *Phyllanthus epiphyllanthus* Linn., as originally published, *Phyllanthus ceramicus* Pers., and *Exocarpus ceramicus* R. Br. and of A. de Candolle must all be interpreted from the Rumphian figure and description.

## OLACACEAE

### XIMENIA Linnaeus

**XIMENIA AMERICANA** Linn. Sp. Pl. (1753) 1193.

*Zizyphus littorea* Teysm. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 176 (type!).

*Vidara littorea* Rumph. Herb. Amb. 2: 119, t. 37.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 260, October 31, 1913, in thickets back of the beach.

*Vidara littorea* Rumph. has not before been definitely placed; it is unquestionably the widely distributed strand plant, *Ximenia americana* Linn. It was reduced by Linnaeus, with doubt, to *Rhamnus napeca* Linn., in Amoen. Acad. 4 (1759) 121. Loureiro, Fl. Cochinch. (1790) 158, discusses it under *Rhamnus saporifer* Lour. = *Zizyphus saporifera* Schultes. Hamilton, Mem. Wern. Soc. 6 (1832) 322, expresses the opinion that it is nearer to *Elaeagnus* than to *Zizyphus*, and Teysmann thought it a distinct species of *Zizyphus* which he called *Zizyphus littorea*, and which was published by Hasskarl, in Abh. Naturf. Gesellsch. Halle 9 (1866) 176 (Neue Schlüssel 34). Of the names cited above, but a single one, *Zizyphus littorea* Teysm., is typified by the Rumphian figure, and this name is not listed in Index Kewensis.

## ARISTOLOCHIACEAE

### ARISTOLOCHIA Linnaeus

**ARISTOLOCHIA RUMPHII** Kostel. Allg. Med.-Pharm. Fl. 2 (1833) 465 (type!).

*Radix puluronica* (s. *Peponaster minor*) Rumph. Herb. Amb. 5: 476, t. 177.

This species is not represented in our Amboina collections.

*Radix puluronica* was originally reduced by Linnaeus to *Aristolochia indica* Linn., in Stickman Herb. Amb. (1754) 25, Amoen. Acad. 4 (1759) 133, Syst. ed. 10 (1759) 1249, in which he was followed by Loureiro, Henschel, and Pritzel, and, with doubt, by Duchartre, in DC. Prodr. 15<sup>1</sup> (1864) 479; this species, however, is definitely known only from India and Ceylon. I have here listed the Rumphian species under *Aristolochia rumphii* Kostel., of which it is the type, as it does not appear to be referable to any of the well-known Malayan species; such as *Aristolochia tagala* Cham., *A. timoriensis* Decne., *A. gaudichaudii* Duch., and *A. zollingeri* Miq.

#### ARISTOLOCHIA sp.

*Peponaster major* Rumph. Herb. Amb. 5: 474.

Hasskarl, Neue Schlüssel (1866) 149, thought that this might be the same as *Aristolochia hastata* Jack, but there is little reason to consider that this reduction is correct, as Jack's species is known only from Sumatra. It might be the very imperfectly described *Aristolochia longifolia* Roxb. (*A. moluccana* Duchartre), the type of which was from the Moluccas, or the very widely distributed *Aristolochia tagala* Cham. (*A. roxburghiana* Klotz.). Its status can be determined only by a critical study of all the Moluccan species when more abundant material is available.

### POLYGONACEAE

#### RHEUM Linnaeus

**RHEUM RHABBARUM** Linn. Sp. Pl. (1753) 372.

*Rhabarbærum sinense* Rumph. Herb. Amb. 6: 148.

The rather long discussion seems to apply to this Linnean species; the plant itself is not described. Hasskarl, Neue Schlüssel (1866) 177, referred it to *Rheum undulatum* Linn., which is a synonym of *R. rhabbarum* Linn.

#### RUMEX Linnaeus

**RUMEX PATIENTIA** Linn. Sp. Pl. (1753) 333.

*Lapathum hortense* Rumph. Herb. Amb. 5: 277.

Hasskarl, Neue Schlüssel (1866) 120, suggests that this is *Rumex patientia* Linn., which is probably the correct disposition of it. The plant is not described by Rumphius, who merely states that it was the same as the European form called *Acetosa hispanica*, *Pathic*, or *Patientia*, that it was cultivated and used in cooking, and that it was known to the Malays as *sayor assam*.

## CHENOPODIACEAE

## CHENOPODIUM Linnaeus

CHENOPODIUM QUINOA Willd. Sp. Pl. 1 (1799) 1301.

*Blitum peruvianum* Rumph. Herb. Amb. 5: 232.

This South American species is briefly discussed. The reduction, made by Hasskarl, to *Chenopodium quinoa* Willd., is probably correct. Rumphius quotes the common name *quinua* for the species he discussed.

## SALICORNIA Tournefort

SALICORNIA HERBACEA Linn. Sp. Pl. ed. 2 (1762) 5.

*Crithmus indicus* III Kaly *articulatum* Rumph. Herb. Amb. 6: 166.

This reduction follows Hasskarl, which is unquestionably the correct disposition of the European plant that Rumphius briefly discussed.

## AMARANTHACEAE

## DEERINGIA R. Brown

DEERINGIA AMARANTHOIDES (Lam.) comb. nov.

*Achyranthes amaranthoides* Lam. Encycl. 1 (1785) 548.

*Celosia baccata* Retz. Obs. 5 (1789) 23.

*Deeringia celosioides* R. Br. Prodr. (1810) 413.

*Deeringia baccata* Moq. in DC. Prodr. 13<sup>2</sup> (1849) 236.

*Blitum frutescens* Rumph. Herb. Amb. 5: 235, t. 83, f. 2.

This widely distributed and well-known species is not represented in our Amboina collections, but Rumphius's excellent figure is unmistakably the form commonly known as *Deeringia celosioides* R. Br. and as *D. baccata* Moq., but for which *Achyranthes amaranthoides* Lam. supplies an older name. Linnaeus, Sp. Pl. ed. 2 (1762) 295, reduced *Blitum frutescens* Rumph. to *Achyranthes muricata* Linn.=*Digera muricata* (Linn.) Mart. The first and only citation in the original place of publication is the one to Rumphius, and this might by some authors be interpreted as the type of the species. However, the Linnean species is manifestly based primarily on an actual specimen and is hence not to be interpreted by the Rumphian reference. Lamarck, realizing that Linnaeus had confused two distinct species under *Achyranthes muricata*, proposed the name *Achyranthes amaranthoides* for what is now known as *Deeringia baccata* Moq., basing his description on specimens collected by Sonnerat, with the reduction of *Blitum frutescens* Rumph. The description applies unmistakably to *Deeringia*, not to *Digera*, although Lamarck's species has long been referred to *Digera*.

*arvensis* Forsk.=*D. muricata* (Linn.) Mart. Other names involved in the reduction of *Blitum frutescens* Rumph. are *Cladostachys arborescens* Don, *Cladostachys muricata* Moq., and *C. frutescens* Don; the first two are synonyms of *Digera muricata* (Linn.) Mart., the last is a synonym of *Deeringia amaranthoides* (Lam.) Merr.

#### CELOSIA Linnaeus

**CELOSIA ARGENTEA** Linn. Sp. Pl. (1753) 205.

*Amarantus caudatus* Rumph. Herb. Amb. 5: 237.

AMBOINA, Koesoekoesoe sereh and town of Amboina, *Robinson Pl. Rumph. Amb. 133*, August, 1913, in waste places at low altitudes, locally known as *bayam blanda*.

This reduction was first suggested by Hasskarl, *Neue Schlüssel* (1866) 115, and I consider it to be the correct disposition of *Amarantus caudatus* Rumph.

**CELOSIA CRISTATA** Linn. Sp. Pl. (1753) 205.

*Amarantus japonicus* Rumph. Herb. Amb. 5: 236, t. 84.

*Amarantus vulgaris* Rumph. Herb. Amb. 5: 236.

This commonly cultivated species is not represented in our Amboina collections. *Amarantus japonicus* Rumph. was originally reduced by Linnaeus to *Celosia cristata* Linn., in *Stickman Herb. Amb. (1754) 21*, *Amoen. Acad. 4 (1759) 130*, *Syst. ed. 10 (1759) 493*, in which he was followed by numerous authors, and which is certainly the correct disposition of it. In the second edition of the *Species Plantarum*, however, (1762) 297, he referred it to *Celosia castrensis* Linn., a synonym of *Celosia cristata* Linn. Hasskarl, *Neue Schlüssel* (1866) 114, refers *Amarantus japonicus* Rumph. to *Celosia cristata* Linn. var. *splendens* Moq., and *Amarantus vulgaris* to *Celosia cristata* Linn. var. *exaltata* Hassk.

#### AMARANTHUS Linnaeus

**AMARANTHUS VIRIDIS** Linn. Sp. Pl. ed. 2 (1763) 1405.

*Blitum indicum domesticum* Rumph. Herb. Amb. 5: 231, t. 82, f. 1.

*Blitum indicum* I *album* Rumph. Herb. Amb. 5: 231.

*Blitum indicum* II *maculosum* Rumph. Herb. Amb. 5: 231.

*Blitum indicum* II *maculosum amboinicum* Rumph. Herb. Amb. 5: 231.

AMBOINA, *Robinson Pl. Rumph. Amb. 139*, August 20, 1913, in waste places, locally known as *bayang*. Also *Rel. Robins. 2513, 2514* from Bali, July 7, 1913.

*Blitum indicum* Rumph., including both forms figured by Rumphius on plate 82, was reduced by Linnaeus to *Amaranthus tristis* Linn., in *Stickman Herb. Amb. (1754) 21*, *Amoen. Acad.*



4 (1759) 130, Syst. ed. 10 (1759) 1268, Sp. Pl. ed. 2 (1763) 1404, in which he was followed by various authors—Lamarck, Loureiro, Willdenow, Burman f., and others. The form described and figured appears to me to be *Amaranthus viridis* Linn. *Blitum indicum I album* Rumph. has also been reduced to *Amaranthus polygamus* Linn. by numerous authors, to *Amaranthus oleraceus* Linn., and to *Euxolus polygamus* Moq.

**AMARANTHUS GANGETICUS** Linn. Syst. ed. 10 (1759) 1268.

*Blitum indicum IV terrestre* Rumph. Herb. Amb. 5: 232, t. 82, f. 2?

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb. 136*, August 16, 1913, locally known as *baya*.

The specimen cited appears to represent a dwarfed form of *Amaranthus gangeticus* Linn. and agrees fairly well with the figure cited. *Blitum indicum IV terrestre* Rumph. has been very generally reduced to *Amaranthus tristis* Linn.

**AMARANTHUS SPINOSUS** Linn. Sp. Pl. (1753) 991.

*Blitum spinosum* Rumph. Herb. Amb. 5: 234, t. 83, f. 1.

AMBOINA, *Robinson Pl. Rumph. Amb. 137, 138*, August, September, 1913, along road sides at low altitudes.

The form cited above certainly represents *Blitum spinosum* Rumph., but is not typical *Amaranthus spinosus* Linn., differing from it in its smaller flowers and in its few, scattered, short spines. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1269, Sp. Pl. ed. 2 (1763) 1407, which disposition of it has been accepted by all authors. The figure is poor and is very greatly reduced in size.

The form from Macassar, Celebes, very briefly described as *Blitum spinosum e Macassar* Rumph., Herb. Amb. 5: 234, is probably the typical, robust form of *Amaranthus spinosus* Linn.

**AMARANTHUS TRICOLOR** Linn. Sp. Pl. (1753) 989.

*Amarantus versicolor* Rumph. Herb. Amb. 5: 237.

*Blitum indicum III rubrum* Rumph. Herb. Amb. 5: 232?

The description of *Amarantus versicolor* applies unmistakably to the rather robust form with variegated and variously colored leaves found in cultivation in many typical countries. The species has been reduced by various authors to *Amaranthus gangeticus* Linn. and to *A. melancholicus* Linn., but *Amaranthus tricolor* Linn. has priority. The reduction of the form that Rumphius described was first made by Henschel. The form *foliis obscure rubentibus* described in this chapter by Rumphius probably also belongs here.

## CYATHULA Loureiro

**CYATHULA PROSTRATA** (Linn.) Blume Bijdr. (1825) 549.

*Achyranthes prostrata* Linn. Sp. Pl. ed. 2 (1762) 296.

*Cyathula geniculata* Lour. Fl. Cochinch. (1790) 102.

*Auris canina I femina* Rumph. Herb. Amb. 6: 26, t. 11.

AMBOINA, *Robinson Pl. Rumph. Amb. 135*, near the town of Amboina in a sago swamp at low altitude.

*Auris canina I femina* Rumph. was originally reduced by Linnaeus to *Achyranthes lappacea* Linn., in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 942, but recognizing his error, he later, Sp. Pl. ed. 2 (1762) 296, cites it in the original description of *Achyranthes prostrata* Linn.=*Cyathula prostrata* Blume. This is certainly the correct disposition of it. Other names involved in the reduction are *Cyathula geniculata* Lour., *Desmochaete prostrata* R. & S., and *Pupalia prostrata* Mart., all synonyms of *Cyathula prostrata* (Linn.) Blume.

## AERVA \* Forskål

**AERVA SANGUINOLENTA** (Linn.) Blume Bijdr. (1825) 547.

*Achyranthes sanguinolenta* Linn. Sp. Pl. ed. 2 (1762) 294.

*Illecebrum sanguinolentum* Linn. Mant. 2 (1771) 344.

*Verbena rubra* Rumph. Herb. Amb. 7: 60, t. 27, f. 2.

This species is not represented in our Amboina collections. *Verbena rubra* Rumph. is cited by Linnaeus in the original description of *Achyranthes sanguinolenta* Linn., but the species was manifestly based on an actual specimen, because of the description added; *Verbena rubra* Rumph., therefore, cannot be interpreted as the type of the species. This reduction of *Verbena rubra* Rumph. is certainly the correct disposition of it, and under one or the other of the above synonyms has been accepted by all authors.

## ACHYRANTHES Linnaeus

**ACHYRANTHES ASPERA** Linn. Sp. Pl. (1753) 204.

*Auris canina II mas* Rumph. Herb. Amb. 6: 27, t. 12, f. 1.

This common and well-known weed is not represented in our Amboina collections. *Auris canina II mas* was originally reduced by Linnaeus to *Achyranthes aspera* Linn., in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Mant. 2 (1771) 344, which is undoubtedly the correct disposition of it. Other authors, however, have referred it as follows: Lamarck

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\* Retained name, Vienna Code; *Comacum* Adans. (1763) is older.

to *Achyranthes fruticosa* Lam.; Hasskarl to *Achyranthes bidentata* Blume var. *elongata* Hassk. and to *Achyranthes javanica* Moq.

ALTERNANTHERA Forskål

ALTERNANTHERA SESSILIS (Linn.) R. Br. ex R. & S. Syst. 5 (1819) 554.

*Gomphrena sessilis* Linn. Sp. Pl. (1753) 225.

*Illecebrum sessile* Linn. Sp. Pl. ed. 2 (1762) 300.

*Olus squillarum* Rumph. Herb. Amb. 6: 37, t. 15, f. 1 (incl. *I majus* et *II minus*).

AMBOINA, Robinson Pl. Rumph. Amb. 134, near the town of Amboina, July and August, 1913, in ditches and in sago swamps at low altitudes.

Linnaeus originally reduced *Olus squillarum* Rumph. to *Gomphrena sessilis* Linn., in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 950, which, as *Alternanthera sessilis* (Linn.) R. Br., is surely the correct disposition of it. Hasskarl, Neue Schlüssel (1866) 158, thought that the description agreed better with *Alternanthera nodiflora* R. Br. than with *A. sessilis* R. Br. and that *Olus squillarum II minus* Rumph. was referable to *Alternanthera nodiflora* R. Br. var. *linearifolia* Moq. *Alternanthera sessilis* R. Br. is not published in the Prodrum (1810) 417, as currently indicated in botanical literature.

GOMPHRENA Linnaeus

GOMPHRENA GLOBOSA Linn. Sp. Pl. (1753) 224.

*Flos globosus* Rumph. Herb. Amb. 5: 289, t. 100, f. 2.

*Flos globosus albus* Rumph. Herb. Amb. 5: 290.

AMBOINA, Negri lama, Robinson Pl. Rumph. Amb. 132, September 8, 1913, in fields at low altitudes, locally known as *knop*.

This reduction of *Flos globosus* Rumph. was originally made by Linnaeus, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, is certainly the correct disposition of it, and has been universally accepted by authors who have had occasion to cite Rumphius's illustration and description.

NYCTAGINACEAE

MIRABILIS Rivinus

MIRABILIS JALAPA Linn. Sp. Pl. (1753) 177.

*Mirabilis* Rumph. Herb. Amb. 5: 253, t. 89.

This commonly cultivated plant is not represented in our Amboina collections. The figure given by Rumphius is an excellent representation of this well-known species. The reduc-

tion was first made by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Sp. Pl. ed. 2 (1762) 252. Seven color forms are included by Rumphius; Hasskarl, Neue Schlüssel (1866) 117, refers one of these to *Mirabilis dichotoma* Linn. and the others to several varieties of *Mirabilis jalapa* Linn.

#### PISONIA Plumier

**PISONIA ALBA** Spanoghe in Linnaea 15 (1841) 342.

*Olus album* Rumph. Herb. Amb. 1: 191, t. 78.

This commonly cultivated tree is not represented in our Amboina collections. The reduction was apparently first suggested by Spanoghe in the original publication of *Pisonia alba* (not seen by me); repeated by Choisy, in DC. Prodr. 13<sup>2</sup> (1849) 446, as a doubtful synonym; by Hasskarl referred with doubt to *Pisonia morindaefolia* R. Br.; and in Retzia, 1 (1855) 6, as apparently representing *Pisonia sylvestris* Teysm. & Binn. The plant described by Rumphius is unmistakably the common and widely cultivated Malayan form with very pale-green or sometimes yellowish-white leaves and is typical *Pisonia alba* Spanoghe. Whether or not *Pisonia alba* Spanoghe is specifically distinct from *P. sylvestris* Teysm. & Binn. is uncertain, but the probabilities are that it is a derived form of *P. sylvestris* or of a closely allied species, which, through long cultivation, rarely produces flowers or fruits. In the Philippines it is generally known as *coles moluco*, certainly indicating that it was introduced into the Archipelago from the Moluccas.

**PISONIA GRANDIS** R. Br. Prodr. (1810) 422.

*Olus album insulare* Rumph. Herb. Amb. 1: 190, t. 79, f. 1 (excl. fig. A, et descr. fruct.).

No *Pisonia*, other than the very characteristic *P. cauliflora* Scheff., is represented in our Amboina collections, but the description given by Rumphius, excluding that of the fruit, is unmistakably applicable to the very large *Pisonia* that is frequently gregarious on small uninhabited islands in the Malayan and Polynesian regions, especially those frequented by birds, which has been described as *Pisonia grandis* R. Br. Hasskarl, Neue Schlüssel (1866) 24, suggests that it may be *Pisonia sylvestris* Teysm. & Binn. which Heimerl considers to be a synonym of *Pisonia grandis* R. Br.

**PISONIA ACULEATA** Linn. Sp. Pl. (1753) 1026.

*Limonellus funicularis montanus* Rumph. Herb. Amb. 5: 25.

This reduction follows Hasskarl's suggestion, Neue Schlüssel (1866) 91, the only objection being that the leaves, as described

by Rumphius, are decidedly larger than is the case with *Pisonia aculeata*. Blume, Bijdr. (1826) 735, places it under his *Pisonia limonella* and takes the specific name from Rumphius, but the actual type was a Javan plant; this is considered by all recent authors to be a synonym of *Pisonia aculeata* Linn. Choisy, in DC. Prodr. 13<sup>2</sup> (1849) 446, cites the Rumphian name under *Pisonia limonellus* Blume, but t. 16, also cited by him, does not belong with *Limonellus funicularis montanus*, but with *Cudranus amboinensis sylvestris* and is a *Cudrania*.

## AIZOACEAE

## SESUVIUM Linnaeus

SESUVIUM PORTULACASTRUM Linn. Syst. ed. 10 (1759) 1058, Amoen. Acad. 4 (1759) 136.

*Portulaca portulacastrum* Linn. Sp. Pl. (1753) 446.

*Crithmus indicus* I *ruber* Rumph. Herb. Amb. 6: 165, t. 72, f. 1.

*Crithmus indicus* II *albus* Rumph. Herb. Amb. 6: 165.

This widely distributed strand plant is not represented in our Amboina collections. The reduction of *Crithmus indicus* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 28, as *Portulaca portulacastrum* Linn., which as *Sesuvium portulacastrum* is manifestly the correct disposition of it. Many authors, however, have quoted it under *Sesuvium repens* Rottl., a synonym of *S. portulacastrum* Linn.

The form mentioned as *Crithmus indicus* III *kaly articulatum* Rumph. Herb. Amb. 6: 166, is manifestly the European *Salicornia herbacea* Linn., as placed by Hasskarl, Neue Schlüssel (1866) 179. The form described as *Crithmus indicus* IV *portulaca arenosa* in the same chapter is apparently *Portulaca quadrifida* Linn., as placed by Hasskarl, l. c.

## PORTULACACEAE

## PORTULACA Linnaeus

PORTULACA OLERACEA Linn. Sp. Pl. (1753) 445.

*Portulaca indica* Rumph. Herb. Amb. 5: 268 (incl. I *major sativa*, II *rubra*).

AMBOINA, near the town of Amboina, *Rel. Robins.* 223, September 3, 1913, locally known as *rumput gelang mera*.

The identification of the Rumphian species was made by Hasskarl, Neue Schlüssel (1866) 119, and is certainly the correct disposition of it. It is a widely distributed weed in all warm countries.

**PORTULACA QUADRIFIDA** Linn. Mant. 1 (1767) 73.

*Portulaca indica* Rumph. Herb. Amb. 5: 268 (incl. *III minima*, *IV litorea*).

Hasskarl, Neue Schlüssel (1866) 119, has reduced both of the above-mentioned forms, *Portulaca indica* *III* and *IV*, to *P. quadrifida* Linn. A single specimen of the latter occurs in our Amboina collection, *Pl. Rumph. Amb.* 222, from coral rocks at Silali, September 22, 1913. This may be the correct disposition of the Rumphian plants, or they may have been merely forms of the commoner and variable *Portulaca oleracea* Linn.

## BASELLACEAE

### BASELLA Linnaeus

**BASELLA RUBRA** Linn. Sp. Pl. (1753) 272.

*Basella alba* Linn. l. c.

*Gandola I alba* Rumph. Herb. Amb. 5: 417.

*Gandola II rubra* Rumph. Herb. Amb. 5: 417, *t. 154, f. 2*.

The form figured by Rumphius was originally reduced by Linnaeus to *Basella rubra* Linn., in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132, which has been accepted by all authors except Loureiro, Fl. Cochinch. (1790) 183, who called it *Basella nigra* Lour.; the latter is manifestly a synonym of *B. rubra* Linn. The form described by Rumphius as *Gandola alba* was placed by Linnaeus, Sp. Pl. ed. 2 (1752) 390, under *Basella alba* Linn., which has very generally been followed by succeeding authors; it is manifestly the form described by Linnaeus as *Basella alba* Linn., but which is now reduced to *B. rubra* Linn., it being manifestly only a variant of that species.

## NYMPHAEACEAE

### NELUMBIUM Jussieu

**NELUMBIUM NELUMBO** (Linn.) Druce Bot. Exch. Club (1914) 421.

*Nymphaea nelumbo* Linn. Sp. Pl. (1753) 511.

*Nelumbium speciosum* Willd. Sp. Pl. 2 (1799) 1258.

*Nelumbo javanica* Poir. in Lam. Encycl. 4 (1798) 454.

*Nymphaea indica major* Rumph. Herb. Amb. 6: 168, *t. 73*.

Rumphius gives a good figure of the common lotus, this being first reduced by Linnaeus to *Nymphaea nelumbo* Linn., in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1074, Sp. Pl. ed. 2 (1762) 730. It has been also cited under *Nelumbium speciosum* Willd., the commonly accepted name for the species, and *Nelumbo javanica* Poir., a synonym of *Nelumbium nelumbo* (Linn.) Druce. The several

color forms mentioned on page 169 probably do not pertain to the lotus, but to the genus *Nymphaea*.

### NYMPHAEA Linnaeus

**NYMPHAEA PUBESCENS** Willd. Sp. Pl. 2 (1799) 1154.

*Castalia pubescens* Blume Bijdr. (1825) 48.

*Nymphaea indica* minor I *vulgaris* Rumph. Herb. Amb. 6: 172 p. p.

*Nymphaea indica* minor III *buronica* Rumph. Herb. Amb. 6: 173.

There is no representative of this genus in our Amboina collections. The color forms of *Nymphaea indica* *major* Rumph. are apparently not *Nelumbium nelumbo* (Linn.) Druce, but are referable here or in part to *Nymphaea stellata* Willd. *Nymphaea indica* I *vulgaris* has been referred by various authors to *Nymphaea lotus* Linn., *N. pubescens* Willd., *N. rubra* Roxb., and *N. stellata* Linn. The description apparently includes both *Nymphaea pubescens* Willd. and *N. stellata* Willd. *Nymphaea indica* II *ceramica*, the form figured, is *Limnanthemum indicum* Griseb. In regard to *Nymphaea lotus* Linn., the type is manifestly the African form, the original specimen still existing in the Linnean herbarium\* where it was examined by Conard.† *Fl. Zeyl.* 194 was wrongly placed here by Linnaeus as a synonym, and is *Nymphaea pubescens* Willd.

**NYMPHAEA STELLATA** Willd. Sp. Pl. 2 (1799) 1153.

*Castalia stellata* Blume Bijdr. (1825) 49.

*Nymphaea indica* minor I *vulgaris* Rumph. Herb. Amb. 6: 172, p. p.

The color forms mentioned by Rumphius, for the most part, are apparently referable to *Nymphaea stellata* Willd. rather than to *Nymphaea lotus* Linn. As to the propriety of the use of *Nymphaea* instead of *Castalia* as the generic name for the water lilies, see Conard in *Rhodora* 18 (1916) 161.

### MENISPERMACEAE

#### PERICAMPYLUS Miers

**PERICAMPYLUS GLAUCUS** (Lam.) comb. nov.

*Menispermum glaucum* Lam. Encycl. 4 (1797) 100 (type!).

*Cocculus glaucus* DC. Syst. 1 (1818) 521 (type!).

*Cocculus incanus* Colebr. in Trans. Linn. Soc. 13 (1822) 57, t. 17.

*Pericampylus incanus* Miers in Ann. Nat. Hist. II 7 (1851) 40; Diels in Engl. Pflanzenreich 46 (1910) 217, cum syn.

*Folium lunatum minus* Rumph. Herb. Amb. 5: 40, t. 25, f. 1.

AMBOINA, Hoenet, *Robinson Pl. Rumph. Amb.* 486, October 18, 1913, climbing on trees, altitude 200 meters, locally known as *binkuang*.

\* Jackson, B. D. Index to the Linnean Herbarium (1912) 108.

† Conard, H. S. The water lilies, a monograph of the genus *Nymphaea*. *Carnegie Inst. Publ.* 4 (1905) 194.

Linnaeus originally reduced *Folium lunatum minus* Rumph. to *Menispermum carolinum* Linn., in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128, Syst. ed. 10 (1759) 992, which is a wholly erroneous disposition of it. Willdenow, Sn. Pl. 4<sup>2</sup> (1805) 825, with equal error, placed it under *Menispermum cocculus* Linn. Lamarck made it the type of *Menispermum glaucum*, this species being based wholly on Rumphius's description and figure, so that in turn it becomes the type of *Cocculus glaucus* DC. and *Pericampylus glaucus* Merr. Diels placed *Folium lunatum minus* Rumph.=*Cocculus glaucus* DC.=*Menispermum glaucum* Lam. as a probable synonym of *Pericampylus incanus* (Colebr.) Miers; Engl. Pflanzenreich 46 (1910) 217. After a careful study of the original description, figure, and the Amboina material cited above, I am able definitely to affirm that this is the correct disposition of the above names, but Lamarck's specific name being much the oldest is here adopted.

#### STEPHANIA Loureiro

**STEPHANIA FORSTERI** (DC.) A. Gray Bot. Wilkes U. S. Explor. Exped. (1854) 36.

*Cocculus forsteri* DC. Syst. 1 (1818) 517.

*Convolvulus laevis* III Rumph. Herb. Amb. 5: 432.

AMBOINA, Paso and near the town of Amboina, *Robinson Pl. Rumph. Amb.* 487, July and October, 1913, in thickets along the seashore.

The identification of *Convolvulus laevis* III has been made largely by exclusion, although Rumphius's description, as far as it goes, applies unmistakably to the specimen cited above. Moreover, the species has been previously collected in Amboina by Dolleschal, and extends from Java to the Philippines, northern Australia, and Polynesia. Hasskarl, *Neue Schlüssel* (1866) 143, thought that *Convolvulus laevis* III might be *Cyclea peltata* Hook. f. & Th.=*Cyclea wallichii* Diels, a species extending from India to the Nicobar and Andaman Islands.

#### TINOSPORA Miers

**TINOSPORA RUMPHII** Boerl. in Cat. Hort. Bot. Bogor. (1901) 116, excl. syn. *Menispermum crispum* Linn. et *Cocculus crispus* DC.

*Funis felleus* Rumph. Herb. Amb. 5: 82, t. 44, f. 1.

This species is not represented in our Amboina collections. According to Rumphius's statement it was an introduced plant there, perhaps originating in Java. *Funis felleus* is cited by Linnaeus in the original description of *Menispermum crispum* Linn.=*Cocculus crispus* DC.=*Tinospora crispa* Miers; but, while the plate and figure are quoted correctly, the name is erroneously



cited as *Funis quadrangularis*, which is the name of the other species figured on the same plate and which is *Cissus quadrangularis* Linn. The Linnean type was a specimen from Bengal and is apparently the form described by Diels as *Tinospora crispa*.\* The form figured by Rumphius differs notably from the Asiatic one in its orbicular-ovate, prominently cordate leaves, and Rumphius's figure agrees perfectly with material derived from the type plant of Boerlage's *Tinospora rumphii*, a specimen cultivated in the botanical garden at Buitenzorg, Java. I consider that Boerlage was wrong in quoting as synonyms of his species *Menispermum crispum* Linn. and *Cocculus crispus* DC., and I am disposed to disagree with Diels in his reduction here of *Tinospora thorelii* Gagnep., a cotype of which is before me. The authority for *Tinospora crispa* should manifestly be Miers, the combination being first published by him in Hooker f. and Thomson's *Flora Indica* 1 (1855) 183, not in *Ann. Mag. Nat. Hist.* II 7 (1851) 38, as frequently cited, and is typified by *Menispermum crispum* Linn. *Menispermum tuberculatum* Lam., to which Lamarck reduced *Funis felleus* Rumph. is primarily only a new name for *Menispermum crispum* Linn., and the description was based on a specimen collected by Sonnerat. If the Linnean species be typified by the reference to Rumphius, the only literature reference cited, then the name for this broad and prominently cordate leaved form should be *Menispermum crispum* (Linn.) Miers, but if the Linnean species be typified by the Bengal plant cited, then apparently Boerlage's name must be maintained for the Malayan form.

*Maccabuhay* e Manila Rumph. Herb. Amb. 5: 287, as to the name, but not the description, is a species of *Tinospora*, either *T. reticulata* Miers or the form characterized by Boerlage as *T. rumphii*. The name *macabuhay* is universally applied in the Philippines to two forms of *Tinospora*, but properly to the one with broad, deeply cordate leaves that has a very bitter principle in its stems. Rumphius's description of *Maccabuhay* e Manila apparently applies to a terrestrial orchid.

#### ANAMIRTA Colebrooke

ANAMIRTA COCCULUS (Linn.) Wight & Arn. Prodr. 1 (1834) 446.

*Menispermum cocculus* Linn. Sp. Pl. (1753) 340.

*Menispermum lacunosum* Lam. Encycl. 4 (1797) 98 (type!).

*Cocculus lacunosus* DC. Syst. 1 (1818) 519 (type!).

*Tuba baccifera* Rumph. Herb. Amb. 5: 35, t. 22.

Not represented in our Amboina collections. Linnaeus ori-

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\* Engl. Pflanzenreich 46 (1910) 135.

ginally reduced *Tuba baccifera* Rumph. to *Menispermum cocculus* Linn., in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128, Syst. ed. 10 (1759) 992, Sp. Pl. ed. 2 (1763) 1468, which, as *Anamirta cocculus* (Linn.) W. & A., is certainly the correct disposition of it. Lamarck made it the type of *Menispermum lacunosum*, and in turn it thus became the type of *Cocculus lacunosus* DC. The species, a very characteristic one, is the sole known representative of the genus and extends from India to the Philippines and southward to New Guinea.

#### ARCANGELISIA Beccari

##### ARCANGELISIA FLAVA (Linn.) comb. nov.

*Menispermum flavum* Linn. in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 128, Syst. ed. 10 (1759) 992 (type!).

*Menispermum flavescens* Lam. Encycl. 4 (1797) 98 (type!).

*Anamirta flavescens* Miq. Fl. Ind. Bat. 1<sup>2</sup> (1858) 79 (type!).

*Cocculus flavescens* DC. Syst. 1 (1818) 520 (type!).

*Arcangelisia incluta* Becc. in Malesia 1 (1877) 147.

*Anamirta lemniscata* Miers in Ann. Nat. Hist. III 14 (1864) 51.

*Arcangelisia lemniscata* Becc. in Malesia 1 (1877) 147; Diels in Engl. Pflanzenreich 46 (1910) 106, f. 38.

*Tuba flava* Rumph. Herb. Amb. 5: 38, t. 24.

This is not represented in our Amboina collections. *Tuba flava* Rumph. has been confused in recent botanical literature with *Anamirta cocculus* Wight & Arn., and several of the above names are cited as synonyms of *Anamirta cocculus* (Linn.) Wight & Arn. in the most recent monograph of the family;\* *Menispermum flavum* Linn. is not accounted for in this monograph. The first four names cited above are based absolutely and wholly on *Tuba flava* Rumph. That *Arcangelisia* and not *Anamirta* is the proper disposition of it is proved by the original description, leaves 5-nerved at the base, "autem cordiformia sed inferius non excavata;" by the fruit, size, and other characters; and especially by the color of the woody tissue, "interne eleganter flavescunt;" this last character alone being one by which *Arcangelisia* can always be distinguished from *Anamirta*. Loureiro, Fl. Cochinch. (1790) 626, cites *Tuba flava* Rumph. as a synonym of *Fibraurea tinctoria* Lour., a valid species, the type of the genus *Fibraura*, but one that has little in common with *Arcangelisia*. *Arcangelisia flava* extends from Java to Luzon and New Guinea, and was collected in Amboina by Teysmann.

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\* Diels in Engl. Pflanzenreich 46 (1910) 108.

## MAGNOLIACEAE

## MICHELIA Linnaeus

**MICHELIA CHAMPACA** Linn. Sp. Pl. (1753) 536.

*Michelia suaveolens* Pers. Syn. 2 (1807) 94.

*Michelia parviflora* DC. Syst. 1 (1818) 449? (type!).

*Michelia caerulea* DC. Syst. 1 (1818) 449? (type!).

*Michelia blumei* Steud. Nomencl. ed. 2, 2 (1841) 139.

*Michelia euonymoides* Burm. f. Fl. Ind. (1768) 124, p. p.

*Sampacca domestica* Rumph. Herb. Amb. 2: 199, t. 67.

*Sampacca* II *parviflora* Rumph. Herb. Amb. 2: 200?

*Sampacca* III *coerulea* Rumph. Herb. Amb. 2: 200?

The common champaca is not represented in our Amboina collections. *Sampacca domestica* was described and figured by Rumphius from cultivated specimens and is certainly typical *Michelia champaca* Linn. It was first reduced by Linnaeus, in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 121; while in the Systema, ed. 10 (1759) 1082, *Sampacca silvestris* Rumph., l. c. t. 68, is added; see below under *Michelia tsjampacca* Linn. *Michelia suaveolens* Pers. is merely a new name for *M. champaca* Linn., while *M. blumei* Steud. was proposed as a new name for *Michelia champaca* Blume, which, however, is typical *M. champaca* Linn. The doubtful synonyms mentioned above, both of de Candolle and of Rumphius, must await further exploration of the Malayan region before they can be definitely placed. *Michelia parviflora* DC. was based wholly on *Sampacca parviflora* Rumph., which is very briefly described by Rumphius from Ternate specimens as being similar to his *Sampacca domestica*, but with smaller flowers; it is probably merely a form of *M. champaca* Linn. *Michelia caerulea* DC. was based wholly on *Sampacca coerulea* Rumph., also very briefly described from Javan specimens similar to *Sampacca domestica*, but with bluish flowers; the Javan name cited is *tsjampacca biru*, and it is probably merely a form of the common *Michelia champaca* Linn.

**MICHELIA ALBA** DC. Syst. 1 (1818) 449 (type!).

*Michelia longifolia* Blume Bijdr. (1825) 7.

*Sampacca domestica* IV *alba* Rumph. Herb. Amb. 2: 200.

*Michelia alba* DC. was based wholly on *Sampacca alba* Rumph., which in turn was described from the white-flowered cultivated form known in Java as *tsjampacca puti*. *Michelia longifolia* Blume is unquestionably the same form, but de Candolle's name is the older and is here retained.

**MICHELIA TSIAMPACCA** Linn. Mant. 1 (1767) 78 (type!).

*Sampacca silvestris* Rumph. Herb. Amb. 2: 202. t. 68.

This species is not represented in our Amboina collections. It was described by Rumphius from sylvan specimens growing in Amboina, having white flowers. It is probably allied to *Michelia montana* Blume. The Rumphian reference seems to be the basis of *Michelia tsiampacca* Linn., but the plate was originally referred by Linnaeus, Syst. ed. 10 (1759) 1082, to *Michelia champaca* Linn. By other authors it has been referred to *Michelia suaveolens* Pers., *M. sericea* Pers., and *M. euonymoides* Burm. f., all of which appear to be synonyms of *Michelia champaca* Linn. The native Amboinese name cited by Rumphius is *tsjampacca utan* or *tsjampacca puti*, and botanical material from Amboina will be necessary before the exact status of the species can be determined.

#### TALAUMA Jussieu

**TALAUMA RUMPHII** Blume Bijdr. (1825) 10 (type!).

*Liriodendron liliifera* Linn. Sp. Pl. ed. 2 (1762) 755 (type!) non *Talauma liliifera* Kurz.

*Sampacca montana* Rumph. Herb. Amb. 2: 204, t. 69 haud *Arbor violaria* Rumph. l. c. 203!

Not represented in our Amboina collections, but manifestly a *Talauma*. *Sampacca montana* Rumph. is the whole basis of *Liriodendron liliifera* Linn., but *Talauma liliifera* Kurz was based on *Liriodendron liliifera* Roxb., non Linn., so that the Linnean specific name is invalid in *Talauma*. The Rumphian plant is also the whole basis of *Talauma rumphii* Blume, but the species, as yet not represented by any botanical material definitely known to represent the Rumphian plant, is one of doubtful status. *Sampacca montana* was referred, with doubt, to *Magnolia pumila* Andr. by de Candolle, Syst. 1 (1818) 458, and it certainly is not this species, nor is it *Magnolia inodora* DC. l. c. 459, which was based on *Liriodendron liliifera* Lour., Fl. Cochinch. (1790) 346; Loureiro's species was based on specimens from Canton, China, to which he added a reference to *Sampacca montana* Rumph.

*Arbor violaria* Rumph., Herb. Amb. 2: 203, as described, is entirely different from *Sampacca montana* Rumph. l. c. 204. t. 69, as described and figured; the plate goes with *Sampacca montana*, not with *Arbor violaria* Rumph. It has been assumed by some that the descriptions applied to the same plant, but *Arbor violaria* was described from cultivated specimens from Banda Island, while *Sampacca montana* was described from

sylvan specimens collected in Amboina. The descriptions apply to totally different plants, and I am unable to suggest the proper position of *Arbor violaria*.

## ANNONACEAE

## UVARIA Linnaeus

UVARIA MUSARIA (Dunal) DC. Mém. Anon. (1832) 29 (type!).

*Unona musaria* Dunal Monogr. Anon. (1817) 100 (type!).

*Uvaria moluccana* Kostel. Allg. Med.-Pharm. Fl. 5 (1836) 1707 (type!).

*Funis musarius latifolius* Rumph. Herb. Amb. 5: 78, t. 42.

AMBOINA, Amahoesoe and Hitoë messen, *Robinson Pl. Rumph. Amb.* 79, September and October, 1913, in flower, growing in forests, altitude 60 to 200 meters; Liang, *Robinson Pl. Rumph. Amb.* 479, November 29, 1913, in thickets at sea level, with nearly full-grown but immature fruits.

*Uvaria musaria* (Dunal) DC. has been previously known only from the Rumphian figure and description, this being the whole basis of *Unona musaria* Dunal, *Uvaria musaria* DC., and *Uvaria moluccana* Kostel. In vegetative and floral characters it closely approximates *Uvaria rosenbergiana* Scheff., of New Guinea. Burman f., Fl. Ind. (1768) 124, followed by Lamarck, Willdenow, Persoon, Poiret, and Pritzel, erroneously reduced *Funis musarius latifolius* Rumph. to *Uvaria zeylanica* Linn.; Blume, Fl. Jav. 1 (1828) Anon. 22, equally in error, placed it under *Uvaria hirsuta* Blume; and Wight and Arnott, Prodr. 1 (1834) 9, placed it under *Uvaria macrophylla* Roxb. *Uvaria musaria* (Dunal) DC. seems to be a perfectly valid species, in the alliance with *Uvaria rosenbergiana* Scheff., *U. littoralis* Blume, and *U. ovalifolia* Blume, differing radically, however, in its slightly pubescent leaves and in its elongated puberulent fruits. *Uvaria pilosa* Roxb., type from the Moluccas, should be critically compared.

UVARIA sp.

*Funis musarius angustifolius* Rumph. Herb. Amb. 5: 78.

The exact status of this form is indeterminable without material from Amboina. Dunal, Monogr. Anon. (1817) 99, reduced it, with doubt, to *Unona narum* Dunal, a species typified by *Narum-panel* Rheede, Hort. Malabar. 2: 11, t. 9. Blume, Fl. Jav. 1 (1828) Anon. 24, thought that it might be *Uvaria argentea* Blume, while Wight and Arnott, Prodr. 1 (1834) 9, placed it, with doubt, under *Uvaria grandiflora* Roxb.

UVARIA sp.

*Funis dentarius* Rumph. Herb. Amb. 5: 79.

Like the preceding, this cannot be definitely placed within

the genus *Uvaria* without additional material from Amboina. It is undoubtedly a species of *Uvaria*, and it has been suggested as a possible synonym of *Uvaria littoralis* Blume or *U. latifolia* Blume; see Hasskarl, Neue Schlüssel (1866) 97. The form very briefly mentioned by Rumphius as *Funis dentarius niger*, Herb. Amb. 5: 79, represents either the same species as *Funis dentarius* Rumph. or a closely allied one.

#### CANANGIUM Baillon

**CANANGIUM ODORATUM** (Lam.) Baill. ex King in Journ. As. Soc. Beng. 61<sup>2</sup> (1892) 41.

*Uvaria odorata* Lam. Encycl. 1 (1785) 595.

*Unona odorata* Dunal Monog. Anon. (1817) 108.

*Cananga odorata* Hook. f. & Th. Fl. Ind. 1 (1855) 130.

*Cananga* Rumph. Herb. Amb. 2: 195, t. 65.

AMBOINA, Elephant River, *Robinson Pl. Rumph. Amb. 80*, July 19, 1913, locally known as *bunga kanangan*.

Lamarck's original description was primarily based on specimens collected by Sonnerat, *Cananga* Rumph. being reduced as a synonym. In this reduction, as *Canangium odoratum* Baill., certainly the correct disposition of it, he was followed by Willdenow, Persoon, Blume, Spanoghe, and Roxburgh. Dunal cites *Cananga* as a synonym of *Unona odorata* Dun. in transferring the species to that genus. *Cananga* Hook. f. & Thomson (1855), the generic name from Rumphius, is invalidated by *Cananga* Aubl. (1775), for which reason Baillon has proposed the new generic name *Canangium*, Hist. Pl. 1 (1868) 213, but Baillon did not actually transfer the species to this genus, this being apparently first accomplished by King. In the more recent literature *Cananga* Rumph. is generally cited under the name *Canangium odoratum* Baill., in the somewhat older literature, after the year 1855, under *Cananga odorata* Hook. f. & Th. Pritzel and Burman f. are wrong in referring it to *Uvaria zeylanica* Linn., which is a true *Uvaria*, known only from India and Ceylon.

#### POLYALTHIA Blume

**POLYALTHIA** sp.

*Uvaria ligularis* Lam. Encycl. 1 (1785) 597 (type!).

*Unona ligularis* Dunal Monog. Anon. (1817) 110 (type!).

*Cananga silvestris* II *angustifolia* Rumph. Herb. Amb. 2: 197, t. 66. f. 2.

Nothing remotely resembling this occurs in our Amboina collections. The figure and the description apply very closely to

*Polyalthia lateriflora* (Blume) King, a species originally described from Javan material, now known from the Malay Peninsula and Java, and the very closely allied *Polyalthia zamboangensis* Merr., of Mindanao. *Cananga silvestris* II *angustifolia* Rumph. is the whole basis of *Uvaria ligularis* Lam. and of *Unona ligularis* Dunal, and Lamarck's specific name may prove to be the oldest for the plant now known as *Polyalthia lateriflora* King. In the absence of material from Amboina representing Rumphius's species, however, it is considered advisable to defer the actual transfer of *Uvaria ligularis* Lam. to *Polyalthia*, although the species manifestly belongs in the latter genus. Linnaeus reduced it, by error, to *Uvaria zeylanica* Linn., in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 121, including also *Cananga silvestris* I *trifolia*, which is figured on the same plate, but neither of which remotely resembles *Uvaria zeylanica* Linn., a species known only from India and Ceylon.

**POLYALTHIA** sp.

*Guatteria rumphii* Blume ex Henschel Vita Rumph. (1833) 153 (type!).

*Arbor nigra parvifolia* Rumph. Herb. Amb. 3: 10, 11, t. 4, f. 2; t. 5.

The plant figured and described is certainly a *Polyalthia*, but its status cannot be definitely settled without material from Amboina. It is the whole basis of *Guatteria rumphii* Blume as published by Henschel, by citation of Rumphius, as indicated above, a name that has been entirely overlooked, and one that is not included in Index Kewensis. Linnaeus reduced, with doubt, both t. 4 and t. 5 to *Uvaria zeylanica* Linn., in Stickman Herb. Amb. (1754) 11, Amoen. Acad. 4 (1759) 122, but neither figure presents anything in common with this species. Hasskarl, Neue Schlüssel (1866) 46, quotes Teysmann's opinion that *Arbor nigra parvifolia* Rumph. represented *Artabotrys suaveolens* Blume, a species with which neither the description nor the figure agrees.

*Arbor nigra maculosa* Rumph. Herb. Amb. 3: 12, t. 4, f. 1, is probably one of the *Annonaceae*, possibly a species of *Polyalthia*. It is certainly not *Artabotrys odoratissimus* Blume, where it was placed by Henschel, Vita Rumph. (1833) 153.

*Arbor nigra latifolia* Rumph. Herb. Amb. 3: 12, is probably some annonaceous plant, but its status must await a more exhaustive botanical exploration of Amboina. No reduction of it has ever been suggested.

## GONIOTHALAMUS Hooker f. and Thomson

## GONIOTHALAMUS sp.

*Uvaria tripetala* Lam. Encycl. 1 (1785) 597 (type!).

*Unona tripetaloidea* Dunal Monog. Anon. (1817) 104 (type!).

*Unona tripetala* DC. Prodr. 1 (1824) 90 (type!).

*Cananga silvestris* I trifolia Rumph. Herb. Amb. 2: 197, t. 66, f. 1.

This is not represented in our Amboina collections. The species, as described and figured by Rumphius, is apparently a very characteristic one, and Amboina material representing it, when collected, should be connected with it with little difficulty. *Cananga silvestris* I trifolia Rumph. is the whole basis of the three names *Uvaria tripetala* Lam., *Unona tripetaloidea* Dunal, and *U. tripetala* DC. Poiret, in Lam. Encycl. 8 (1808) 187, referred it to *Unona discolor* Dunal=*Desmos chinensis* Lour., an impossible reduction; while Hasskarl, Neue Schlüssel (1866) 40, thought that it might be a species of *Artabotrys*, also an impossible reduction. As the three inner petals are described as much smaller than the outer three and as surrounding or covering the stamens, it is probable that *Goniothalamus* is its correct genus, as here tentatively suggested. However, no actual transfer is here made, as the exact status of the species must await further botanical exploration of Amboina.

## ARTABOTRYS R. Brown

ARTABOTRYS SUAVEOLENS Blume Fl. Jav. 1 (1828) Anon. 62.

*Spina vaccarum* Rumph. Herb. Amb. 5: 21, t. 14.

This species is not represented in our Amboina collections. *Spina vaccarum* Rumph. was reduced by Blume to *Artabotrys suaveolens* Blume in the original description of that species, and the figure is apparently a good representation of it as currently interpreted. All authors have followed Blume in this reduction, the species being one of very wide distribution in the Malayan region. When Amboina material is available for study, however, it should be critically compared with *Artabotrys inodorus* Zipp. of New Guinea.

## MELODORUM Hooker f. and Thomson

MELODORUM LATIFOLIUM (Dunal) Hook. f. & Th. Fl. Ind. (1855) 115, saltem quoad syn.

*Unona latifolia* Dunal Monog. Anon. (1817) 115 (type!).

*Uvaria latifolia* Blume Fl. Jav. 1 (1828) Anon. 37.

*Cananga silvestris* III latifolia Rumph. Herb. Amb. 2: 198.

This is not represented in our Amboina collections. *Unona latifolia* Dunal, as originally published, was based wholly on



Rumphius's description of *Cananga silvestris* III *latifolia*, and Blume redescribed it from Javan material as *Uvaria latifolia* Blume, followed by Hooker f. and Thomson, Miquel, and King, as *Melodorum latifolium* (Dunal) Hook. f. & Th. It is probable that *Melodorum latifolium* Hook. f. & Th., as described in modern botanical literature, is the same as the form described by Rumphius, the original basis of the species; yet no botanical material from Amboina representing the species as it is at present understood seems to be extant, and the exact status of *Unona latifolia* Dunal must await further botanical exploration of Amboina.

## ANNONA Linnaeus

ANNONA RETICULATA Linn. Sp. Pl. (1753) 537.

*Anona* Rumph. Herb. Amb. 1: 136, t. 45.

This commonly cultivated fruit tree is not represented in our Amboina collections, but like the next, it doubtless still occurs there, as both are widely distributed in the Malayan region. *Anona* Rumph. was first reduced to *Annona reticulata* Linn., in Stickman Herb. Amb. (1754) 7, Amoen. Acad. 4 (1759) 119, Syst. ed. 10 (1759) 1083, Sp. Pl. ed. 2 (1763) 757, which is certainly the correct disposition of it. De Candolle, Syst. 1 (1818) 474, placed it under *Annona mucosa* Aubl.=*Rollinia mucosa* Baill., in this erroneous reduction being followed by Don, Henschel, Dietrich, and Pritzel.

ANNONA SQUAMOSA Linn. Sp. Pl. (1753) 537.

*Anona tuberosa* Rumph. Herb. Amb. 1: 138, t. 46.

Like the above, this commonly cultivated plant is not represented in our Amboina collections. *Anona tuberosa* Rumph. was first reduced by Linnaeus, in Stickman Herb. Amb. (1754) 7, Amoen. Acad. 4 (1759) 119; this reduction has been consistently followed by most authors and is certainly the correct disposition of the species.

## MYRISTICACEAE

## MYRISTICA \* Linnaeus

MYRISTICA FRAGRANS Houtt. Handleid. 2<sup>3</sup> (1774) 333.

*Myristica officinalis* Linn. f. Suppl. (1781) 265.

*Myristica moschata* Thunb. Act. Holm. (1782) 45.

*Myristica aromatica* Lam. Act. Paris (1788) 155.

*Nux myristica* Rumph. Herb. Amb. 2: 14, t. 4.

AMBOINA, Kati-kati and Way tommo, Robinson Pl. Rumph. Amb. 245, 246, August and October, 1913, from cultivated plants, altitude 50 to 60 meters, locally known as *pala*.

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\* Retained name, Vienna Code; *Quret* Adans. (1763) is older.

*Nux myristica* Rumph. has been cited by various authors under all of the names listed above. Rumphius described five forms, all apparently merely variants of the common nutmeg, although Miquel referred *Pala radja* Rumph. to *Myristica radja* Miq., Ann. Mus. Bot. Lugd. Bat. 1 (1864) 206. Warburg, Nov. Act. Akad. Naturf. 68 (1897) 453, considers the plant that Miquel described to be *Myristica speciosa* Warb., not *M. fragrans* Houtt.

**MYRISTICA FATUA** Houtt. Handleid 2<sup>3</sup> (1774) 337.

*Myristica tomentosa* Thunb. Act. Holm. (1782) 46.

*Myristica spadicea* Blume Bijdr. (1825) 577.

*Myristica macrophylla* Roxb. Fl. Ind. ed. 2, 3 (1832) 846.

*Nux myristica mas* Rumph. Herb. Amb. 2: 24, t. 5.

Nothing resembling *Myristica fatua* Houtt., as currently interpreted, occurs in our Amboina collections. *Nux myristica mas* has been referred by various authors to *Myristica fatua* Houtt., *M. tomentosa* Thunb., *M. officinalis* Gaertn., *M. philippensis* Lam., *M. malabarica* Lam., and *M. moschata* Thunb., the reductions in all but the two cases first cited being erroneous. The species is a well-known one, occurring in Banda, Amboina, Tidore, and (?) Buru, and is cultivated in the botanic garden at Buitenzorg, Java.

#### HORSFIELDIA Willdenow

**HORSFIELDIA SYLVESTRIS** (Houtt.) Warb. in Nov. Act. Acad. Naturf. 68 (1897) 337, t. 12, f. 1-6.

*Myristica sylvestris* Houtt. Handl. 2<sup>3</sup> (1774) 326.

*Myristica salicifolia* Willd. Sp. Pl. 4 (1805) 871.

*Myristica pinnaeformis* Miq. Ann. Mus. Bot. Lugd. Bat. 2 (1865) 49.

*Palala secunda* Rumph. Herb. Amb. 2: 26, t. 6 (poor).

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb.* 235, November 1, 1913, in forested ravines, altitude about 100 meters.

The Rumphian figure and description are perhaps the type of *Myristica sylvestris* Houtt. (original publication not seen by me); *Myristica salicifolia* Willd. is merely a new name for *M. sylvestris* Houtt.

**HORSFIELDIA CANARIFORMIS** (Blume) comb. nov.

*Myristica canariformis* Blume Rumphia 1 (1835) 190 (type!).

*Horsfieldia roxburghii* Warb. in Nov. Act. Akad. Naturf. 68 (1897) 277, t. 21, f. 1-2.

*Palala quarta* Rumph. Herb. Amb. 2: 27, t. 8.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb.* 240, November 1, 1913, in forests, altitude about 175 meters.

*Palala quarta* Rumph. is the whole basis of *Myristica canariiformis* Blume, which Warburg thought was a possible synonym of *Horsfieldia nesophila* (Miq.) Warb. I am of the opinion, however, that it is identical with the Amboina form described by Warburg as *Horsfieldia roxburghii* and accordingly have here adopted Blume's specific name. Willdenow, Sp. Pl. 4 (1805) 871, considered that it represented a variety of *Myristica microcarpa* Willd., whatever that species may be, but it is certainly not properly placed here.

#### HORSFIELDIA sp.

*Myristica tingens* Blume Rumphia 1 (1835) 190 (type!).

*Palala tertia* Rumph. Herb. Amb. 2: 27, t. 7.

According to Rumphius's description and figure this is a very characteristic species, but nothing in our Amboina collections can be referred to it. *Palala tertia* Rumph. is the whole basis of *Myristica tingens* Blume, but no new combination is here made in view of the uncertain status of that species. Willdenow, Sp. Pl. 4 (1805) 871, referred it to *Myristica microcarpa* Willd., which is perhaps the oldest valid specific name for the species. Lamarck, Encycl. 4 (1797) 391, placed it with doubt under *Myristica uviformis* Lam., but Lamarck's species is not a myristicaceous plant, and Warburg has suggested that it belongs in the *Euphorbiaceae*. The status of *Myristica microcarpa* Willd. is entirely doubtful, for I cannot agree with Warburg that it is a synonym of *Knema cinerea* Warb. Incidentally the type of *Knema cinerea* (Poir.) Warb. certainly did not come from the Philippines as Warburg states, for LaBillardiére never visited the Archipelago. Buton, as spelled by him, and Bouton, as spelled by Poiret in the original description, probably refer to Boeton Island, near the southern end of Celebes.

#### HORSFIELDIA sp.

*Myristica aruana* Blume Rumphia 1 (1835) 191 (type!).

*Palala aruana* Rumph. Herb. Amb. 7: 56, t. 24, f. 3.

A species of doubtful status, probably, however, a *Horsfieldia*. *Myristica aruana* Blume was based wholly on *Palala aruana* Rumph. and accordingly must be interpreted solely from Rumphius's description and crude figure. If Warburg is correct in reducing *Myristica aruana* Blume to *Horsfieldia novo-guineensis* Warb., then Blume's specific name should be adopted for the species unless one considers it invalidated by the distinct *Horsfieldia aruensis* Warb.

## GYMNACRANTHERA Warburg

GYMNACRANTHERA ZIPPELIANA (Miq.) Warb. in Nov. Act. Akad. Naturf. 68 (1897) 372.

*Myristica zippeliana* Miq. Ann. Mus. Bot. Lugd. Bat. 2 (1865) 50.  
*Palala quinta* Rumph. Herb. Amb. 2: 28, t. 9.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb. 239*, October 18, 1913, in forests, altitude about 450 meters, locally known as *palala utan*.

Willdenow, Sp. Pl. 4 (1805) 871, considered *Palala quinta* Rumph. to be a variety of *Myristica microcarpa* Willd., while Lamarck, Encycl. 4 (1797) 388, placed it with doubt under *Myristica globularia* Lam. Lamarck's species was based on specimens collected by Sonnerat and is *Knema globularia* Warb. There is little doubt that the specimen cited above represents *Palala quinta* Rumph., and it is certainly a *Gymnacranthera*, probably *G. zippeliana* Warb., although this species has not been previously reported from Amboina.

## KNEMA Loureiro

KNEMA TOMENTELLA Warb. in Nov. Act. Akad. Naturf. 68 (1897) 588, t. 25, f. 1-2.

*Palala sexta* Rumph. Herb. Amb. 2: 28.

AMBOINA, Hatiwe, Waë, and Kati-kati, *Robinson Pl. Rumph. Amb. 236, 237, 238*, September to November, 1913, in forests, altitude 20 to 350 meters, locally known as *palala utan*.

*Palala sexta* Rumph. is, with little doubt, the same as *Knema tomentella* Warb. Hasskarl, Neue Schlüssel (1866) 26, suggested that it might be the same as *Myristica corticosa* Hook. f. & Th., which Warburg interprets as being composed of *Knema angustifolia* Warb., *K. glauca* Warb., and *K. missionis* Warb.

## LAURACEAE

## CINNAMOMUM Linnaeus

CINNAMOMUM CULILAWAN Blume Bijdr. (1825) 571, Rumphia 1 (1835) 26, t. 9, f. 1.

*Laurus culitlawan* Linn. in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 120 (type!).

*Laurus culilaban* Linn. Mant. 2 (1771) 237 (type!).

*Cortex caryophylloides albus* Rumph. Herb. Amb. 2: 65, t. 14.

*Culit Lawan* Rumph. Herb. Amb. 7: 65.

The Rumphian figure and description of *Cortex caryophylloides albus* are the whole basis of both *Laurus culitlawan* Linn. and *L. culilaban* Linn., but *Cinnamomum culilawan* Blume was published independently of the Linnean binomials. Blume gives an ample description and figures from Amboina material;

however, he definitely excludes the figure of the inflorescence as given by Rumphius, which he apparently thought went with *Cinnamomum caryophylloides ruber* Rumph.

**CINNAMOMUM CULILAWAN** Blume var. **RUBRUM** (Blume) Meissn. in DC. Prodr. 15<sup>1</sup> (1864) 14.

*Cinnamomum rubrum* Blume Rumphia 1 (1835) 29.

*Cinnamomum caryophylloides ruber* Rumph. Herb. Amb. 2: 66.

Blume based his description of *Cinnamomum rubrum* partly on the form described by Rumphius above cited, which Meisner considers to be a variety of *Cinnamomum culilawan* Blume.

**CINNAMOMUM XANTHONEURUM** Blume Rumphia 1 (1825) 33.

*Culitlawan ex Papuanis et Moluccis insulis* Rumph. Herb. Amb. 2: 66.

This follows Blume's reduction of the form Rumphius described, which is probably the correct disposition of it.

**CINNAMOMUM JAVANICUM** Blume Rumphia 1 (1835) 42.

*Sindoc* Rumph. Herb. Amb. 2: 69.

The reduction of *Sindoc* follows Blume's disposition of it. The form Rumphius described was placed by Burman f. under *Laurus malabathrum* Burm. f., Fl. Ind. (1768) 92, based in part on a species figured and described by Rheede, and in part on *Sindoc* of Rumphius, to be typified by the former. Miquel placed it under *Cinnamomum sulphuratum* Nees; Henschel placed it under *Cinnamomum sintoc* Blume; and Nees followed Blume in reducing it to *Cinnamomum javanicum* Blume.

**CINNAMOMUM CAMPHORA** (Linn.) T. Nees & Eberm. Handb. Med.-Pharm. Bot. 2 (1831) 430.

*Laurus camphora* Linn. Sp. Pl. (1753) 369.

*Arbor camphorifera I vera* Rumph. Herb. Amb. 7: 65, 68.

The general discussion is manifestly in part applicable to the true camphor tree, *Cinnamomum camphora* T. Nees & Eberm.

**CINNAMOMUM** spp. indet.

*Laurus japonica* Rumph. Herb. Amb. 7: 64.

*Cinnamomum japonicum II* Rumph. Herb. Amb. 7: 64.

*Cinnamomum zeylanicum* Rumph. Herb. Amb. 7: 64.

These three forms, imperfectly described, are manifestly referable to the genus *Cinnamomum*, but it is impossible to determine just which species were intended. The first was placed by Henschel under *Laurus soncaurium* Ham.=*Cinnamomum tamala* T. Nees & Eberm., of the Himalayan region, certainly a wrong disposition of it; the second was thought by Hasskarl, Neue Schlüssel (1866) 192, to be possibly referable to *Cinnamomum dulce* Nees; and the third was placed by Hasskarl under *Cinna-*

*momum zeylanicum* Nees, which is perhaps the correct disposition of it.

#### DEHAASIA Blume

DEHAASIA MEDIA Blume Rumphia 1 (1835) 163, t. 45.

*Haasia media* Nees Syst. Laur. (1836) 375.

*Machilus III media* Rumph. Herb. Amb. 3: 70, t. 41.

This is not represented in our Amboina collections. Blume's ample description and figure were based on Amboina material, and his disposition of *Machilus media* Rumph. is doubtless correct, Rumphius's description and figure being cited in the original description of the species. Nees, Syst. Laur. (1836) 125, thought that it might be *Persea peduncularis* Nees, and it was cited by Henschel as *Machilus peduncularis* Nees.

#### MACHILUS Nees

MACHILUS sp.?

*Machilus IV minima* Rumph. Herb. Amb. 3: 70, t. 42.

Nothing resembling the plant figured and described is presented by our Amboina collections, but a species of *Machilus*, as interpreted by Meisner, is probably intended. The generic name *Machilus* of Nees is taken from Rumphius. Loureiro, Fl. Cochinch. (1790) 253, referred *Machilus minima* with doubt to *Laurus indica* Linn., an entirely wrong disposition of it. Nees thought that the figure represented *Machilus odoratissima* Nees, Syst. Laur. (1836) 172, and repeated the reduction in DC. Prodr. 15<sup>1</sup> (1864) 40. It is certainly not *Machilus odoratissima* Nees and may ultimately prove to belong to some other genus. It is possibly a species of *Phoebe* rather than of *Machilus*.

#### EUSIDEROXYLON Teysmann and Binnindyck

EUSIDEROXYLON ZWAGERI Teysm. & Binn. in Nat. Tijdschr. Nederl. Ind. 25 (1863) 292.

*Lontaro simile lignum* Rumph. Herb. Amb. 1: 52.

Rumphius includes only a brief description of the Bornean wood which he calls *caju boelian*; the identification has been made from the native name cited, *billian* being the common name for this important Bornean timber tree.

#### LITSEA\* Lamarck

LITSEA RUMPHII (Blume) F.-Vill. Noviss. App. Fl. Filip. (1880) 180.

*Tetranthera rumphii* Blume Mus. Bot. 1 (1851) 382.

*Lignum leve alterum* Rumph. Herb. Amb. 3: 72, t. 45.

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\* Retained name, Vienna Code; *Malapoenna* Adans. (1763) and *Tomex* Thumb. (1783) are older.

Not represented in our Amboina collections. The reduction was made by Blume in the original description of *Tetranthera rumphii* Blume, and this is presumably the correct disposition of the Rumphian species; Blume apparently had a specimen from Amboina, judging from his short and imperfect description. Nees thought that it was a species of *Tetranthera* near *T. monopetala* Roxb.

LITSEA sp.

*Glabraria tersa* Linn. Mant. 2 (1771) 276, quoad syn. Rumph.

*Lignum leve angustifolium* Rumph. Herb. Amb. 3: 71, t. 44.

Not represented in our Amboina collections. The plant that Rumphius figured and described is manifestly a species of *Litsea*, apparently in the group with *Litsea fulva* F.-Vill. and *Litsea luzonica* F.-Vill. Blume, Mus. Bot. 1 (1851) 383, placed it as a possible synonym of *Tetranthera forstenii* Blume=*Litsea forstenii* Boerl. Its exact status, however, cannot be determined without Amboina material. Linnaeus, Mant. 2 (1771) 276, quoted *Lignum leve angustifolium* Rumph. as a synonym of *Litsea tersa* Linn. in the original description of that species. It is clearly manifest, however, from the description, that he had an actual specimen, and it is equally manifest that the plant he described is not the same as the one figured and described by Rumphius. The specimen in the Linnean herbarium has been examined for me by Mr. Gamble, who writes under date of June 17, 1917, that it is a polypetalous plant, probably belonging in the *Bombacaceae* near the genus *Boschia* Korth. *Glabraria* Linnaeus must, accordingly, be eliminated as a synonym of *Litsea*. Persoon, Syn. 2 (1807) 4, following Linnaeus's erroneous reduction of *Lignum leve angustifolium*, quotes it as a synonym of *Litsea glabraria* Pers., as does Nees under *Tetranthera glabraria* Nees; these names, however, go with *Litsea glutinosa* (Lour.) C. B. Rob. (*L. chinensis* Lam., *L. sebifera* Pers.), as does *Litsea tersa* Merr. (non *Glabraria tersa* Linn.).

LITSEA STICKMANII sp. nov.

*Lignum leve latifolium* Rumph. Herb. Amb. 3: 71, t. 43.

AMBOINA, Hitoe messen and Paso, *Robinson Pl. Rumph. Amb.* 470, 471 (type), November 1 and 25, 1913, in forests and along roadsides, altitude 3 to 200 meters, locally known as *halaor pantey*.

Arbor 10 ad 12 m alta, inflorescentiis exceptis glabra; foliis oblongis, firme chartaceis, usque ad 20 cm longis, utrinque aequaliter angustatis, basi acutis, apice acutis vel obscure acuminatis, supra subolivaceis, subtus pallidis, nervis utrinque circiter 8, subtus prominentibus, curvato-adscendentibus, reticulis distinctis; inflorescentiis axillaribus, fasciculatis, umbel-

lulis circiter 6-floris, longe graciliterque pedunculatis, floribus pubescentibus.

A tree 10 to 12 m high, quite glabrous except the inflorescence. Branches and branchlets brownish, the latter more or less angled. Leaves alternate, oblong, firmly chartaceous, 12 to 20 cm long, 3.5 to 5.5 cm wide, equally narrowed to the acute base and to the acute or obscurely acuminate apex, the upper surface more or less olivaceous when dry, smooth and shining, the lower pale; lateral nerves about 8 on each side of the midrib, prominent on the lower surface, curved-ascending, obscurely anastomosing, the ultimate reticulations fine, rather close; petioles about 1 cm long. Flowers axillary, the umbellules fascicled, their peduncles slender, slightly pubescent, about 1 cm long, each about 6-flowered. Bracts obovate to elliptic-obovate, rounded, concave, pubescent, 3.5 to 4 mm long. Flowers appressed-pubescent, their pedicels 2 to 3 mm long, the lobes oblong, 2 mm in length. Fruit unknown, when very young one to three on each peduncle.

This species is apparently allied to the form Blume described as *Tetranthera ambigua* Blume (not *Litsea ambigua* Nees), but differs in its smaller leaves, glabrous branchlets, and other characters. It certainly represents *Lignum leve latifolium* Rumph. It is dedicated to O. Stickman, author of the first publication on the Herbarium Amboinense.

Loureiro, Fl. Cochinch. (1790) 471, erroneously referred *Lignum leve latifolium* Rumph. to *Glabraria tersa* Linn., followed by Blume's reference of it to *Tetranthera laurifolia* Jacq. var. *tersa* (Linn.) Blume, with which it has nothing in common. Nees, in DC. Prodr. 15<sup>1</sup> (1864) 180, placed it, with doubt, under *Tetranthera laurifolia* Jacq. var. *saligna* Nees, where it certainly does not belong.

#### LITSEA sp.

*Machilus II femina* Rumph. Herb. Amb. 3: 69, t. 40, f. B.

AMBOINA, Hoetoemoeri road, *Robinson Pl. Rumph. Amb. 469*, September 30, 1913, in forests, altitude about 300 meters.

The specimen cited certainly represents the form described by Rumphius, of which he figures a single leaf. There is nothing in the figure by which *Machilus I mas* can be distinguished from *Machilus femina*, and it certainly represents a species of *Litsea* perhaps not distinct from the one here considered. The only previous suggestion as to the identity of *Machilus I mas* Rumph., Herb. Amb. 3: 68, t. 40, is Teysmann's opinion, quoted by Hass-



karl, Neue Schlüssel (1866) 51, that it belongs in the *Lauraceae*, and of *Machilus II femina* Rumph. that it might be a species of *Haasia*, which is certainly a wrong disposition of it.

#### NEOLITSEA Merrill

**NEOLITSEA AMBOINENSIS** sp. nov.

*Machilus angustifolia* Rumph. Herb. Amb. 7: 60, t. 27, f. 1.

AMBOINA, between Soja and Hatalai, *Robinson Pl. Rumph. Amb. 606* (type), October 24, 1913, in light forests, altitude about 350 meters.

Arbor circiter 9 m alta, ramulis junioribus inflorescentiisque pubescentibus; foliis verticillatis vel subverticillatis, glabris, oblongo-lanceolatis ad oblongo-ellipticis, usque ad 12 cm longis, utrinque subaequaliter angustatis, basi acutis, vix triplinervis, apice tenuiter acuminatis, nervis utrinque circiter 5, curvato-adscendentibus, subtus prominentibus; fructibus junioribus ovoideis, in siccitate nigris, nitidis, circiter 6 mm diametro.

A tree about 9 m high, the young branchlets and inflorescences pubescent. Branches slender, terete, grayish, the younger ones reddish-brown, smooth, glabrous, tips of the branchlets rather densely appressed-pubescent. Leaves coriaceous, subverticillate or verticillate at the ends of the branchlets, oblong-lanceolate to oblong-elliptic, 7 to 12 cm long, 2.5 to 3.5 cm wide, subequally narrowed to the acute base and to the rather slenderly and sharply acuminate apex, the upper surface subolivaceous, smooth and shining, the lower slightly paler, sometimes somewhat glaucous, glabrous, or the midrib sometimes sparingly pubescent, the base scarcely triplinerved; lateral nerves about 5 on each side of the midrib, curved-ascending, scarcely anastomosing, prominent on the lower surface, the ultimate reticulations close, rather indistinct; petioles more or less pubescent, 5 to 7 mm long. Flowers not seen. Infructescences in the axils of fallen leaves, fascicled, the pedicels and persistent calyx ferruginous-villous, the pedicels rather stout, about 5 mm long. Young fruit ovoid, about 6 mm in diameter, glabrous, black and shining when dry.

A species in the group with *Neolitsea triplinervia* (Blume) (*Litsea triplinervia* Blume), and *Neolitsea cassiaefolia* (Blume) (*Litsea cassiaefolia* Blume), but the leaves not prominently triplinerved as in these two Javan species, in fact they are strictly penninerved, the lower pair being no longer than the next pair above.

The species is, with very little doubt, *Machilus angustifolia* Rumph. Rumphius's description applies closely, but the figure

is poor and presents the leaves relatively much narrower than in the species as here interpreted. Henschel and Pritzel erroneously reduced *Machilus angustifolia* Rumph. to *Tetranthera angustifolia* Wall.=*Actinodaphne angustifolia* Nees.

#### ACTINODAPHNE Nees

**ACTINODAPHNE RUMPHII** Blume Mus. Bot. 1 (1851) 344.

*Arbor spiculorum aeruginea* Rumph. Herb. Amb. 3: 167, t. 106.

This species is not represented in our Amboina collections. Blume made this reduction of the Rumphian illustration in the original description of *Actinodaphne rumphii* Blume, which was based on material from the Moluccas, probably Amboina. He cites the Rumphian name as *Arbor spiculorum angustifolia*, but the figure manifestly goes with the form called by Rumphius *Arbor spiculorum aeruginea*.

**ACTINODAPHNE MOLUCCANA** Blume Mus. Bot. 1 (1851) 344 (type!).

*Arbor spiculorum latifolia* Rumph. Herb. Amb. 5: 167.

A species of very doubtful status, based wholly on Rumphius's description. The third form described by Rumphius in this chapter as *Arbor spiculorum angustifolia brevifolia* is entirely doubtful, but is probably a lauraceous plant.

#### CRYPTOCARYA R. Brown

**CRYPTOCARYA** sp.?

*Lauraster amboinensis maxima* Rumph. Herb. Amb. 2: 70, t. 15.

Nothing resembling this is presented in our Amboina collections. The species described and figured by Rumphius is certainly a lauraceous plant and is probably a *Cryptocarya*, judging from the rather crude figure. Local names cited by Rumphius are *leytun*, *hiber*, *hiyr*, *ittir*, *ayhoo-ittil*, and *ley itir*, so that it is very probable that the species can later be located through one of the above names. The form described in the same chapter as *Lauraster amboinensis minor* probably represents an entirely different species, possibly also a *Cryptocarya*; its status is quite uncertain and cannot be determined from data at present available.

#### MASSOIA Beccari

**MASSOIA AROMATICA** Becc. in d'Albertis New Guinea 2 (1880) 398.

*Cortex oninius s. massoy* Rumph. Herb. Amb. 2: 62.

The reduction has been made from the characters given by Rumphius and the name *massoy* cited by him. The status of

*Massoia* as a genus is very uncertain. The form described by Rumphius as *Cortex oninius* II may or may not be the same as *Massoia aromatica* Becc.; Hasskarl, *Neue Schlüssel* (1866) 28, cites it under *Cinnamomum kaimis* Nees.

## CASSYTHA Linnaeus

CASSYTHA FILIFORMIS Linn. Sp. Pl. (1753) 35.

*Calodium cochinchinensis* Lour. Fl. Cochinch. (1790) 247.

*Cussuta s. cussutha indica* Rumph. Herb. Amb. 5: 491, t. 184, f. 4.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb.* 472, September 4, 1913, along the seashore.

This reduction was first made by Linnaeus, in *Stickman Herb. Amb.* (1754) 25, *Amoen. Acad.* 4 (1759) 133, *Syst. ed.* 10 (1759) 862, *Sp. Pl. ed.* 2 (1762) 531, and this is manifestly the correct disposition of *Cussutha indica* Rumph. *Calodium cochinchinensis* Lour., under which Loureiro cited the Rumphian description and illustration, is a synonym of *Cassytha filiformis* Linn.

## HERNANDIACEAE

## HERNANDIA Plumier

HERNANDIA OVIGERA Linn. in *Stickman Herb. Amb.* (1754) 14, *Amoen. Acad.* 4 (1759) 125, *Syst. ed.* 10 (1759) 1264, *Sp. Pl. ed.* 2 (1763) 1392 (type!).

*Arbor ovigera femina* Rumph. Herb. Amb. 3: 193, t. 123.

AMBOINA, *Robinson Pl. Rumph. Amb.* 476, a single specimen separated from No. 477, *Hernandia peltata* Meisn.

This represents the form figured by Rumphius and the one described as *Arbor ovigera femina*. The Linnean species is typified by the Rumphian figure and description, *Hernandia ovigera* Linn. being based wholly on *Arbor ovigera t. 123*.

HERNANDIA PELTATA Meisn. in DC. Prodr. 15<sup>1</sup> (1864) 263.

*Arbor ovigera mas* Rumph. Herb. Amb. 3: 193.

AMBOINA, *Robinson Pl. Rumph. Amb.* 477, August 8, 1913, along the seashore near the town of Amboina, locally known as *mata ipang* or *mata ikang*.

The form described by Rumphius as *Arbor ovigera mas* is unmistakably *Hernandia peltata* Meisn., the leaves being definitely described as peltate. It is strongly suspected that *Hernandia peltata* Meisn. is not specifically distinct from *Hernandia ovigera* Linn., but is merely a form with peltate leaves. It is assumed that the specimen cited under *Hernandia ovigera* Linn. and the one cited under *H. peltata* Meisn. came from the same tree.

## CRUCIFERAE

## NASTURTIIUM \* R. Brown

**NASTURTIIUM INDICUM** (Linn.) DC. Syst. 2 (1821) 199.

*Sisymbrium indicum* Linn. Mant. 1 (1767) 93.

*Sinapi indigenum s. amboinicum* Rumph. Herb. Amb. 5: 282.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 268, July 19, 1913, in and near ditches.

Hasskarl, *Neue Schlüssel* (1866) 121, has suggested that this is a species of *Sinapis*; but from Rumphius's brief description, the indicated habitat, and the note that it has no economic use, it is evident that *Nasturtium* is the plant intended.

## BRASSICA (Tourn.) Linnaeus

**BRASSICA JUNCEA** (Linn.) Coss. in Bull. Soc. Bot. France 6 (1859) 609.

*Sinapis juncea* Linn. Sp. Pl. (1753) 668.

*Sinapi sinense* Rumph. Herb. Amb. 5: 282.

AMBOINA, Titauuku, *Robinson Pl. Rumph. Amb.* 405, October 8, 1913, in cleared places, altitude about 120 meters, locally known as *susawi ambon* and *rumpu china blanda*.

This specimen I take to be typical *Brassica juncea* Coss., the ordinary form that is widely distributed in the Malay Archipelago. The plant, or plants, actually described by Rumphius, are, however, the cultivated forms of Chinese origin, which appear to be forms of *Brassica pekinensis* (Lour.) Skeels (*Sinapis pekinensis* Lour.). Rumphius indicates two forms, under the names *album* and *nigrum*. It seems very probable that this commonly cultivated Chinese form is but a horticultural variety of *Brassica juncea* Coss.

## CAPPARIDACEAE

## POLANISIA Rafinesque

**POLANISIA VISCOSA** (Linn.) DC. Prodr. 1 (1824) 242.

*Cleome viscosa* Linn. Sp. Pl. (1753) 672.

*Lagansa alba* Rumph. Herb. Amb. 5: 280, t. 96, f. 3.

AMBOINA, Liang, *Robinson Pl. Rumph. Amb.* 412, November 29, 1913, along roadsides, at low altitudes, locally known as *lagansa*.

This common weed was originally reduced by Linnaeus, in

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\* Retained name, Brussels Congress; *Cardaminium* Moench (1794), and *Baeumerta* Gaertn. (1800) are older.

Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1137, to *Cleome icosandra* Linn., but the plant described as *Lagansa alba* is manifestly the form commonly known as *Polanisia viscosa* (Linn.) DC. In the description of the plate figure 2 is connected with *Lagansa alba*, but it is apparent that the figures are reversed between *Lagansa alba* and *Lagansa rubra*.

#### GYNANDROPSIS \* de Candolle

GYNANDROPSIS PENTAPHYLLA (Linn.) DC. Prodr. 1 (1824) 238.

*Cleome pentaphylla* Linn. Sp. Pl. ed. 2 (1763) 938.

*Lagansa rubra* Rumph. Herb. Amb. 5: 280, t. 96, f. 2.

The common and well-known *Gynandropsis pentaphylla* DC. is not represented in our Amboina collections. The Rumphian description, however, applies well to this species. In the description of the plate the explanations of *Lagansa alba* and *Lagansa rubra* are transposed.

### MORINGACEAE

#### MORINGA Burman f.

MORINGA OLEIFERA Lam. Encycl. 1 (1785) 398.

*Guilandina moringa* Linn. Sp. Pl. (1753) 381.

*Moringa pterygosperma* Gaertn. Fruct. 2 (1791) 314.

*Morunga* Rumph. Herb. Amb. 1: 184, t. 74.

*Morunga femina* Rumph. Herb. Amb. 1: 185, t. 75.

AMBOINA, in cultivation, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 255, September 13, 1913, locally known as *kelor*.

The reduction of *Morunga*, t. 74, was first made by Linnaeus, in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120; and in the Systema, ed. 10 (1759) 1018, he also reduced *Morunga femina*, t. 75. Both figures manifestly represent the same species, and both are unmistakably the common and well-known *Moringa oleifera* Lam. Other names, all synonyms, to which the Rumphian figures have been referred by various authors are: *Hyperanthera moringa* Vahl, *Moringa zeylanica* Willd., *Moringa domestica* Ham., *Anoma moringa* Lour., *A. morunga* Lour., and *Moringa polygona* DC.; some of these are to be interpreted in part by the Rumphian figures. *Moringa domestica* Ham., in Mem. Wern. Soc. 5<sup>2</sup> (1826) 368, 371, does not appear in Index Kewensis.

\* Retained name, Vienna Code; *Pedicellaria* Schrank (1790) is older.

## NEPENTHACEAE

## NEPENTHES Linnaeus

## NEPENTHES MIRABILIS (Lour.) Merr. comb. nov.

*Phyllamphora mirabilis* Lour. Fl. Cochinch. (1790) 606.

*Nepenthes phyllamphora* Willd. Sp. Pl. 4<sup>2</sup> (1805) 874.

*Cantharifera* Rumph. Herb. Amb. 5: 121, t. 59, f. 2.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb.* 256, July 31, 1913, on a fern-covered hillside along the river at an altitude of from 10 to 50 meters; Batoe gadjah, *Robinson Pl. Rumph. Amb.* 257, August 5, 1913, on grassy hillsides at an altitude of about 150 meters.

*Cantharifera* was erroneously reduced by Linnaeus to *Nepenthes distillatoria* Linn., the type of the genus, and a species confined to Ceylon, in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 129, Syst. ed. 10 (1759) 1247, Sp. Pl. ed. 2 (1763) 1354, in which he was followed by Burman f., Fl. Ind. (1768) 190. Loureiro, however, Fl. Cochinch. (1790) 606, described a Cochinchina specimen as *Phyllamphora mirabilis* Lour., and under it he discussed *Cantharifera* Rumph., stating that it differed from his plant in its prostrate stems and scandent branches. The species, as described by Loureiro, must be interpreted from Cochinchina specimens, but in all probability is the same as the widely distributed species commonly known as *Nepenthes phyllamphora* Willd., which is definitely known from low altitudes from southern China to the Philippines, Borneo, Malay Peninsula, Sumatra, Amboina, the Caroline Islands, and New Guinea. *Nepenthes phyllamphora* Willd. was based wholly on Loureiro's species, but Willdenow definitely refers here *Cantharifera* Rumph. Under the accepted code of botanical nomenclature the above new combination is necessary for this well-known and widely distributed species; both names, *Phyllamphora mirabilis* and *Nepenthes phyllamphora*, must be interpreted by the plant Loureiro described.

NEPENTHES MAXIMA Reinw. ex Nees in Ann. Sci. Nat. I 3 (1824) 369, t. 20, f. 3.

*Cantharifera alba* Rumph. Herb. Amb. 5: 122.

AMBOINA, Salahoetoe, *Robinson Pl. Rumph. Amb.* 413, November 27, 1913, terrestrial and climbing, chiefly at an altitude of about 900 meters, locally known as *tampayan utan*.

The identification of *Cantharifera alba* with *Nepenthes maxima* Reinw. was suggested by Hasskarl, Neue Schlüssel (1866) 103, and there is but very little doubt that this is the correct disposition of it. It was described by Rumphius from specimens received from the neighboring island of Little Ceram and was

not recorded by him as being from Amboina. Macfarlane \* definitely records *Nepenthes maxima* Reinw. from Amboina, New Guinea, Celebes, and Borneo.

## CRASSULACEAE

## KALANCHOE Adanson

**KALANCHOE LACINIATA** (Linn.) DC. Pl. Grass. (1799–1829) t. 100, Prodr. 3 (1828) 395.

*Cotyledon laciniata* Linn. Sp. Pl. (1753) 430.

*Planta anatis* Rumph. Herb. Amb. 5: 275, t. 95.

This species is not represented in our Amboina collections. The figure is poor, but the description, at least in most part, applies to this widely distributed species. It may, in part, apply also to *Bryophyllum pinnatum* (Lam.) Kurz (*B. calycinum* Salisb.), but the description of the flowers as 5-merous and yellow indicates a *Kalanchoe* not a *Bryophyllum*. The reduction of *Planta anatis* to *Cotyledon laciniata* Linn. was made by Linnaeus himself, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1036, Sp. Pl. ed. 2 (1762) 615, in which he has been followed by all later authors, either under *Cotyledon*, *Kalanchoe*, or *Verrea*.

*Bryophyllum pinnatum* (Lam.) Kurz. (*B. calycinum* Salisb.) occurs in our Amboina collections (Roemah tiga, *Rel. Robins.* 1819, July 30, 1913) and, as noted above, may be included in the Rumphian description of *Planta anatis*. Primarily, however, *Planta anatis* is certainly *Kalanchoe laciniata* (Linn.) DC.

## PITTOSPORACEAE

## PITTOSPORUM Banks

**PITTOSPORUM MOLUCCANUM** (Lam.) Miq. Ill. Fl. Arch. Ind. (1871) 76.

*Anasser moluccana* Lam. Ill. 2 (1797) 40 (type!).

*Anassera moluccana* Pers. Syn. 1 (1805) 265 (type!).

*Pittosporum ferrugineum* Ait. var. *filarium* DC. Prodr. 1 (1824) 347 (type!).

*Pittosporum rumphii* Putterl. Syn. Pitt. (1839) 7 (type).

*Cortex foetidus* Rumph. Herb. Amb. 7: 12, t. 7.

This species is not represented in our Amboina collections, but Miquel, l. c., cites Amboina material collected by Zippel and by Teysmann, on which his sufficiently ample description is based. The Rumphian figure and description are the whole basis of *Anasser moluccana* Lam., *Anassera moluccana* Pers., and de Candolle's variety of *Pittosporum ferrugineum* cited above (erroneously cited as *Cortex filarius*, but the page and

\* Engl. Pflanzenreich 36 (1908) 76.

plate numbers are correct), and apparently Putterlick's *Pittosporum rumphii*. It differs from *Pittosporum ferrugineum* Ait. notably in its larger fruits and leaves.

**PITTIOSPORUM** sp.?

*Cortex igneus* Rumph. Herb. Amb. 7: 10, t. 6, f. 1.

Hasskarl, Neue Schlüssel (1866) 186, thought that this might be a species of *Pittosporum*, following Teysmann's suggestion. It was not from Amboina, but from the Aru Islands or from others in the same general region. Native names cited are *culit api*, *eyk*, and *mockulhāulo*. There is little in the description to indicate that it is a *Pittosporum*, and its status is quite undeterminable from the data and the material at present available.

**CUNONIACEAE**

**WEINMANNIA** \* Linnaeus

**WEINMANNIA FRAXINEA** Sm. ex D. Don in Edinb. New Philos. Journ. 9 (1830) 93.

*Pterophylla fraxinea* D. Don l. c.

*Cortex papetarius* Rumph. Herb. Amb. 3: 212, t. 137.

The type of *Weinmannia fraxinea* Sm. was from the Moluccas, so that the probabilities are that Teysmann was correct in his reduction of *Cortex papetarius* Rumph. to Smith's species. Rumphius's figure is an excellent one and is unmistakably a *Weinmannia*. Linnaeus, Mant. 2 (1771) 510, erroneously reduced it to *Dialium indum* Linn., in which he was followed by numerous authors. Burman f., Fl. Ind. (1768) 12, considered that it represented a variety of *Dialium javanicum* Burm. f., which is a synonym of *D. indum* Linn. Hasskarl, Neue Schlüssel (1866) 68, thought that it might be an *Otonychium* = *Harpullia* (*Sapindaceae*), with which it has nothing in common, and at the same time quotes Teysmann's opinion that it is *Weinmannia fraxinea* Sm.

**SCHIZOMERIA** D. Don

**SCHIZOMERIA SERRATA** Hochr. in Ann. Conserv. Jard. Bot. Genève 10 (1907) 118.

*Acronychia serrata* Hochr. Pl. Bogor. Exsicc. (1904) 49.

*Tanarius major* Rumph. Herb. Amb. 3: 192, t. 122.

*Arbor vespertilionum* || *oppositifolia* Rumph. Herb. Amb. 7: 17, t. 10.

AMBOINA, Robinson Pl. Rumph. Amb. 603, without definite locality or date.

The specimen is a good match for the figure of *Tanarius major* Rumph. and agrees with the description even better than with the figure. *Tanarius major* Rumph. was discussed by Loureiro.

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\* Retained name, Vienna Code; *Windmannia* P. Br. (1756) is older.



Fl. Cochinch. (1790) 231, under *Jambolifera resinosa* Lour., and has been cited by Don, Henschel, and de Candolle under *Cyminosma resinosa* Don, but has nothing to do with the species that Loureiro described. The specimen also agrees perfectly with the figure of *Arbor vespertilionum* Rumph. and with the short description of the second plant included in the description. The major part of the description of *Arbor vespertilionum* Rumph., that is, the first form described in this chapter, is *Helicia serrata* R. Br. (see p. 205), and the figure has been referred to *Helicia*, where it manifestly does not belong. *Schizomeria serrata* Hochr. is known only from Amboina, was originally described from specimens cultivated in the botanic garden at Buitenzorg, Java, and is very closely allied to the Australian species *Schizomeria ovata* D. Don, the only other known species of the genus. This is one of the few cases in which Rumphius described and figured the same species twice under entirely different names.

## HAMAMELIDACEAE

### ALTINGIA Noronha

**ALTINGIA EXCELSA** Noronha in Verh. Batav. Genootsch. 5<sup>2</sup> (1795) 9.

*Lignum papuanum* I Rumph. Herb. Amb. 2: 57?

Persoon, Syn. 2 (1807) 579, reduced this to *Altingia excelsa* Noronha, apparently after Noronha, and Blume reduced it to *Liquidamber altingia* Bl.=*L. altingiana* Blume, both synonyms of *Altingia excelsa* Noronha. It is probable that Rumphius included more than this one species under *Lignum papuanum* I, especially in view of the fact that *Altingia excelsa* Noronha does not appear to be definitely known from so far to the east as New Guinea. The form described in the same chapter as *Lignum papuanum* II, unless referable to *Altingia excelsa* Noronha, is undeterminable. The identification of *Lignum papuanum* is based largely on the native name cited by Rumphius, *caju rasamala*; in Java *rasamala* is the resin of *Altingia excelsa* Noronha. The plant Rumphius had in mind may have been entirely different.

## ROSACEAE

### RUBUS Linnaeus

**RUBUS MOLUCCANUS** Linn. Sp. Pl. (1753) 1197 (type!).

*Rubus moluccus latifolius* Rumph. Herb. Amb. 5: 88, t. 47, f. 2.

AMBOINA, Halong and near the town of Amboina, *Robinson Pl. Rumph. Amb.* 270, July 16 and 23, 1913, in light forests and open places, altitude about 10 meters, locally known as *buan tampayang* and *daun doeri doeri*.

The Rumphian figure and description are the whole basis of *Rubus moluccanus* Linn., but this species has been interpreted by many authors as a polymorphous one and given a range from the Himalayan region to Ceylon, southern China, the Philippines, Malaya, and northeastern Australia. Hooker f., Fl. Brit. Ind. 2 (1878) 330, states:

I am quite unable to arrange the forms of this common and protean plant under recognizable varieties answering to its synonymy.

Focke, in his monograph of the genus *Rubus*, Bibl. Bot. 17<sup>1</sup> (1910) 89, reproduces the Rumphian figure and limits the species to Amboina. He cites no specimens, gives a short description after data given by Rumphius, and was unable to determine the status of the species in a satisfactory manner. He states:

Die weitere Verbreitung ist völlig unsicher, weil die Art zu ungenügend bekannt ist. Anscheinend gehören hierher Exemplare von Vóun auf Neu-guinea (leg. Tejsmann) und vielleicht auch von Luzon.

*Rubus moluccanus* Linn. has been treated by many authors as a collective species, and it is very evident that numerous forms so named in herbaria cannot be properly placed under this species, but must be considered as distinct ones. The Amboina specimens closely match a large series of specimens in the herbarium of the Bureau of Science from various parts of the Philippines and a few specimens from Borneo and Java. It is suspected that the typical form will be found to be of wide distribution in the Malay Archipelago. Its exact status can now be definitely determined by a direct comparison with the topotype cited above. All authors have followed Linnaeus in the reduction of the Rumphian figure and description, so that the case is not complicated by synonyms, except as species described by later authors, without reference to Rumphius, may have been reduced to typical *Rubus moluccanus* Linn.

**RUBUS FRAXINIFOLIUS** Poir. in Lam. Encycl. 6 (1804) 242, subsp.  
**CELEBICUS** (Blume) Focke in Bibl. Bot. 17<sup>2</sup> (1911) 150, f. 63.

*Rubus celebicus* Blume Bijdr. (1826) 1107.

*Rubus parvifolius* Linn. Sp. Pl. (1753) 1197 p. p. (quoad syn. Rumph.).

*Rubus moluccus parvifolius* Rumph. Herb. Amb. 5: 88, t. 47, f. 1.

AMBOINA, near the town of Amboina, Robinson Pl. Rumph. Amb. 271.  
July 23, 1913, hillsides and river banks, altitude 5 to 10 meters.

The Rumphian figure and description were cited by Linnaeus in the original description of *Rubus parvifolius*, Sp. Pl. (1753)

1197, but the actual type, on which the description was based and from which the Linnean species must be interpreted, was a specimen collected near Canton, China, by Osbeck. This specimen is the same as *Rubus triphyllus* Thunb., Fl. Jap. (1784) 215, the name that Focke has adopted for the species. However, Focke is manifestly in error in the selection of this name as the valid one for the species is *Rubus parvifolius* Linn. (1753) [not *R. parviflorus* Linn. as cited by Focke, Bibl. Bot. 17<sup>2</sup> (1911) 187]. *Rubus fraxinifolius* Poir. was described from Javan specimens collected by Commerson and is widely distributed in the Sunda Islands, especially in Java and Sumatra. The sub-species *celebicus* Focke is widely distributed in the Philippines and in the Moluccas, extending to New Guinea.

#### PARINARIUM Aublet

**PARINARIUM GLABERRIMUM** Hassk. in Tijdschr. Nat. Ges. 10 (1843) 147, *nomen nudum*, Cat. Hort. Bogor. (1844) 269, *nomen nudum*, Flora 27 (1844) 583.

*Parinarium scabrum* Hassk. in Tijdschr. Nat. Ges. 10 (1843) 147, *nomen nudum*, Cat. Hort. Bogor. (1844) 269, *nomen nudum*, Flora 27 (1844) 585.

*Parinarium laurinum* A. Gray Bot. Wilkes U. S. Explor. Exped. (1854) 490, t. 55.

*Parinarium ellipticum* T. & B. Cat. Hort. Bogor. (1866) 253.

*Parinarium macrophyllum* T. & B. l. c., Nat. Tijdschr. Ned. Ind. 29 (1867) 256.

*Parinarium mindanaense* Perk. Frag. Fl. Filip. (1904) 119.

*Parinarium racemosum* Merr. in Govt. Lab. Publ. (Philip.) 17 (1904) 19, non Vid.

*Parinarium curranii* Merr. in Philip. Journ. Sci. 4 (1910) Bot. 264.

**Atunus** Rumph. Herb. Amb. 1: 171, t. 66.

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb. 273*, August 16, 1913, in open forests, altitude about 5 meters, in fruit; Amboina (town), *Robinson Pl. Rumph. Amb. 272*, November 4, 1913, from a cultivated tree, in flower. Both specimens bear the common name *atun*.

*Atunus* of Rumphius has not been previously referred to its proper place in our present system of classification, although Hasskarl, Neue Schlüssel (1866) 22, suggested that it was a *Parinarium*. It manifestly is *Parinarium*, and the species very generally known as *Parinarium scabrum* Hassk., of which numerous synonyms are given above. In citing the above synonyms I have in part followed Koorders and Valetton, Bijdr. Boomsoort. Java 5 (1900) 337, but have also seen authentically named specimens of most of the species I have here reduced. Loureiro, Fl. Cochinch. (1790) 295, mentions it, following the

description of *Stixis scandens* Lour., as apparently belonging in the same genus as that species, but *Atunus* has nothing in common with *Stixis scandens* Lour., which belongs in the *Caparidaceae*. *Atunus albus* Rumph., l. c. 172, is probably a form of *Parinarium glaberrimum* Hassk.

## CONNARACEAE

### CONNARUS Linnaeus

#### CONNARUS sp.

*Clompanus funicularis* Rumph. Herb. Amb. 5: 70. t. 37, f. 2.

The description and figure are certainly those of a *Connarus*, and perhaps *Clompanus funicularis* Rumph. is the same as *Connarus gaudichaudii* Planch. Lamarck, Encycl. 2 (1786) 52, places it under *Clompanus paniculatus* Aubl., a species based on material from tropical America, and one that has nothing to do with the form that Rumphius figured and described. Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 349, suggested that it might be a species of *Millettia*, where it certainly does not belong.

## LEGUMINOSAE

### PITHECOLOBIUM \* Martius

**PITHECOLOBIUM CLYPEARIA** (Jack) Benth. in Hook. Lond. Journ. Bot. 3 (1844) 209.

*Inga clypearia* Jack Malay Miscel. 2 (1822) 78.

*Mimosa trapezifolia* Roxb. Hort. Beng. (1814) 93, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 546.

*Adenanthera circinalis* DC. Prodr. 2 (1825) 446 (type!).

*Clypearia rubra* Rumph. Herb. Amb. 3: 176, t. 112.

AMBOINA, Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 548, October 3, 1913, in light forests, altitude about 285 meters.

In proposing the name *Adenanthera falcata* Linn., in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 124, Linnaeus referred to it both *Clypearia alba* and *Clypearia rubra* as represented by tt. 111 and 112 of Rumphius. I maintain that the name must be typified by the first figure mentioned, that is t. 111, especially in view of the fact that in the Syst. ed. 10 (1759) 1020 and Sp. Pl. ed. 2 (1762) 550 Linnaeus excluded under *Adenanthera falcata* and *A. falcataria* the reference to t. 112, *Clypearia rubra*, limiting the species to *Clypearia alba* Rumph. t. 111. I have not seen the original description of *Inga clypearia* Jack, which was based on Sumatran specimens;

\* Retained name, Brussels Congress; *Zygia* Boehm. (1760) is older.

the specific name, however, was unquestionably taken from Rumphius. Prain\* cites *Inga clypearia* Jack as a doubtful synonym of *Pithecolobium clypearia* Benth., but if *Inga clypearia* Jack should prove to be different from *Pithecolobium clypearia* Benth. as currently interpreted, then the specific name will go with Jack's species. *Adenanthera circinnalis* DC. is based wholly on *Clypearia rubra* Rumph., and both are cited by Bentham as synonyms of *Pithecolobium clypearia* (Jack) Benth., in Trans. Linn. Soc. 30 (1875) 580.

#### ALBIZZIA Durazzini

**ALBIZZIA SAPONARIA** (Lour.) Blume ex Miq. Fl. Ind. Bat 1<sup>1</sup> (1855) 19.

*Mimosa saponaria* Lour. Fl. Cochinch. (1790) 653.

*Inga saponaria* Willd. Sp. Pl. 4 (1805) 1008.

*Cortex saponarius* Rumph. Herb. Amb. 4: 131, t. 66.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb. 523*, August 13, 1913, on limestone formation, altitude about 30 meters, in flower; Hatiwe, *Robinson Pl. Rumph. Amb. 524*, September 15, 1913, in forests, altitude about 300 meters, in fruit, locally known as *langir*.

*Mimosa saponaria* Lour. was described from a Cochin-China specimen, which has been universally considered, and probably is, identical with the form that Rumphius described. Loureiro also cites the Rumphian plant as representing his species, while Cochin-China material in various herbaria is identical with the common Philippine and Moluccan form of the species.

**ALBIZZIA FALCATA** (Linn.) Backer comb. nov.

*Adenanthera falcata* Linn. in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1020 (type!).

*Adenanthera falcataria* Linn. Sp. Pl. ed. 2 (1762) 550 (type!).

*Albizzia moluccana* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 26; Koord. in Meded. Lands Plantent. 19 (1898) 419.

*Clypearia alba* Rumph. Herb. Amb. 3: 176, t. 111.

This species is not represented in our Amboina collections. However, after a very careful study of Rumphius's description I have definitely concluded that the form he described and figured is identical with *Albizzia moluccana* Miq., a species originally described from leaf specimens only, but of which Koorders has given an ample and detailed description. Mr. Backer in connection with his study of the Leguminosae of Java has independently reached the same conclusion. In all botanical literature the Rumphian *Clypearia alba* has been cited under *Adenanthera falcata* Linn. and *A. falcataria* Linn., both

\* Journ. As. Soc. Beng. 66<sup>1</sup> (1897) 274.

being based wholly on Rumphius's description and figure. The description, compiled wholly from Rumphius, is given under one or the other of these names by Burman f., Fl. Ind. (1768) 101, Murr. Syst. (1771) 398, Lam. Encycl. 2 (1786) 76, Pers. Syn. 1 (1805) 461, Willd. Sp. Pl. 2 (1799) 550, DC. Prodr. 2 (1825) 446, Don Gen. Syst. 2 (1832) 399, Dietr. Syn. 2 (1839-52) 1425, Walp. Repert. 5 (1846) 580, Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 47, and Walp. Ann. 4 (1857) 613, yet the status of the species has been very doubtful up to the present time.

**ALBIZZIA RETUSA** Benth. in Hook. Lond. Journ. Bot. 3 (1844) 90.

*Albizzia littoralis* T. & B. in Nat. Tijdschr. Ned. Ind. 29 (1866) 259.

*Clypearia maritima* Rumph. Herb. Amb. 3: 199.

This species is not represented in our Amboina collections. I have very little doubt that this is the correct disposition of *Clypearia maritima*, after the description and data given by Rumphius. Hasskarl, Neue Schlüssel (1866) 66, follows Radermacher in considering it an undetermined species of *Adenanthera*. The species is scattered along the seashore from the Nicobar Islands through Malaya and the Philippines to the Caroline Islands and has been reported from Amboina.

**ALBIZZIA PROCERA** (Roxb.) Benth. in Hook. Lond. Journ. Bot. 3 (1844) 89.

*Mimosa procera* Roxb. Pl. Coromandel 2 (1798) 12, t. 121.

*Lignum murinum majus* Rumph. Herb. Amb. 3: 50, t. 28.

Nothing resembling this occurs in our Amboina collections, but I have not the slightest doubt that the plant figured is identical with *Albizzia procera* Benth., which extends from India to tropical Australia. Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 54, has suggested that the Rumphian figure represents an *Albizzia*, but otherwise no other author has suggested an identification of *Lignum murinum*.

The two other forms described, but not figured by Rumphius, l. c. 50, 51, as *Lignum murinum minus* and *Lignum murinum parvifolium*, probably also represent species of *Albizzia*, as suggested by Miquel. Their status, however, cannot be definitely determined from data at present available.

*Caju ticcos leytimorensis* Rumph., Herb. Amb. 3: 52, briefly described by Rumphius, is suggested by Hasskarl, Neue Schlüssel (1866) 50, as a possible synonym of *Albizzia procera* Benth. The description of the pods and of the wood hardly conforms to Roxburgh's species; it probably is an *Albizzia*, but its status must remain doubtful pending further exploration of Amboina.

## ALBIZZIA sp.

*Clypearia rubra* s. sye II Rumph. Herb. Amb. 3: 177.

The description is very brief, following that of *Clypearia rubra*. Hasskarl, Neue Schlüssel (1866) 205, suggests that it may be *Albizzia moluccana* Miq., which I have here reduced to *Albizzia falcata* (Linn.) Backer. Its exact status is indeterminable at the present time, but it is probably a species of *Albizzia*.

## ACACIA Linnaeus

ACACIA MANGIUM Willd. Sp. Pl. 4<sup>2</sup> (1805) 1053 (type!).

*Mimosa simplicifolia* Linn. var. *mangium* Poir. in Lam. Encycl. Suppl. 1 (1810) 61.

*Acacia holosericea* A. Cunn. ex G. Don Gen. Syst. 2 (1832) 407.

*Mangium montanum* Rumph. Herb. Amb. 3: 123, t. 81.

A species based wholly on Rumphius's description and figure. The description, after Rumphius, has been repeated by de Candolle, Prodr. 2 (1825) 451; Don, Gen. Syst. 2 (1832) 403; Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 15; and Bentham, Trans. Linn. Soc. 30 (1875) 495. Bentham thought that it was probably allied to the Australian *Acacia holosericea* A. Cunn., and I consider his surmise correct; in fact I can detect no differences between Australian specimens and material from the Island of Buru (cult. Buitenzorg I-C-37-K-32). Forster f., Prodr. (1786) 75, referred *Mangium montanum* Rumph. to *Mimosa mangium* Forst. f., basing his description, however, on actual specimens from the Friendly Islands, New Caledonia, and New Hebrides. *Acacia mangium* Willd. was published independently of the earlier *Mimosa mangium* Forst. f.

ACACIA RUGATA (Lam.) Ham. in Wall. Cat. (1832) no. 5251.

*Mimosa rugata* Lam. Encycl. 1 (1783) 20.

*Mimosa concinna* Willd. Sp. Pl. 4 (1805) 1039.

*Acacia concinna* DC. Prodr. 2 (1825) 464.

*Guilandina microphylla* DC. Prodr. 2 (1825) 480 (type!).

*Nugae silvarum minimae* Rumph. Herb. Amb. 5: 95, t. 49, f. 2.

This species is not represented in our Amboina collections. The Rumphian figure is poor, presenting a sterile branch only, but both it and the description conform better to *Acacia rugata* (Lam.) Ham. than to any other known species, so that the present reduction is probably the correct disposition of it. Burman f., Fl. Ind. (1768) 99, thought it represented a variety of *Guilandina nuga* Linn. *Guilandina microphylla* DC. was based wholly on the Rumphian figure and description. Wight and Arnott, Prodr. (1834) 277, reduced it to *Acacia concinna* DC.

with doubt, while Miquel cites it as a possible synonym of *Acacia hooperiana* Zipp. var. *subcuneata* (Bl.) Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 11=*Acacia concinna* DC.=*Acacia rugata* (Lam.) Ham.

#### MIMOSA Linnaeus

MIMOSA PUDICA Linn. Sp. Pl. (1753) 518.

*Herba mimosa* Rumph. Herb. Amb. 5: 303.

AMBOINA, Robinson Pl. Rumph. Amb. 526, July 25, 1913, along small streams near the town of Amboina.

The identification of *Herba mimosa* follows Hasskarl, Neue Schlüssel (1866) 124, which is certainly the correct disposition of it. This weed originated in tropical America and is now found in most hot countries. As noted by Doctor Robinson this was known to Rumphius only by description, but is now fairly common in Amboina.

In the discussion of the various species of plants with sensitive leaves, following *Herba sentiens* Rumph., Herb. Amb. 5: 301, several representatives of the *Mimosoideae* are briefly described or mentioned, some probably are species of the genus *Mimosa*, others may belong in allied genera. Following Hasskarl, Neue Schlüssel (1866) 124, 125, Caban cabanan, page 304, may be a *Mimosa*; *Similis planta peruana*, page 304, may be *Mimosa dormiens* HBK.; *Altera planta peruana*, page 304, may be *Mimosa humilis* HBK.; *Pina hui huitzli*, page 304, may be *Mimosa casta* Linn.; *Arbor pudica*, page 305, may be *Mimosa pudibunda* Willd.; while *Planta sentiens hispanorum* and *Herba viva* are wholly doubtful. It is hardly worth while to consider these forms, as the data given are in most cases quite insufficient on which to base a definite identification of the several forms; and Hasskarl's determinations, as any must be, are for the most part merely guesses. They were not from Amboina and were known to Rumphius by description only.

#### ADENANTHERA Royen

ADENANTHERA PAVONINA Linn. Sp. Pl. (1753) 384.

*Corallaria parvifolia* Rumph. Herb. Amb. 3: 173, t. 109.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 544, October 29, 1913, along the seashore.

The original reduction of *Corallaria parvifolia* to *Adenanthera pavonina* was made by Linnaeus, in Stickman Herb. Amb. (1754) 14, is the correct disposition of it, and has been consistently followed by all subsequent authors who have had occasion to cite the Rumphian figure.



## ENTADA \* Adanson

**ENTADA PHASEOLOIDES** (Linn.) Merr. in Philip. Journ. Sci. 9 (1914) Bot. 86.

*Lens phaseoloides* Linn. in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128 (type!).

*Mimosa entada* Linn. Sp. Pl. (1753) 518.

*Mimosa scandens* Linn. Sp. Pl. ed. 2 (1763) 1501.

*Entada scandens* Benth. in Hook. Lond. Journ. Bot. 4 (1842) 332.

*Entada rumphii* Scheff. in Nat. Tijdschr. Nederl. Ind. 32 (1871) 412.

*Faba marina major* Rumph. Herb. Amb. 5: 5, t. 4.

AMBOINA, Amahoese, *Robinson Pl. Rumph. Amb. 528*, August, 28, 1913, in flower, growing near the beach; Kati-kati, *Robinson Pl. Rumph. Amb. 529*, October 7, 1913, in flower and fruit, growing at an altitude of about 80 meters.

The Rumphian plate is the whole basis of *Lens phaseoloides* Linn., which supplies the oldest valid specific name for this widely distributed species, although the name *Lens phaseoloides* as published by Linnaeus was probably taken from Burman, *Thesaurus Zeylanicus* (1737) 139. The original publication in Stickman's Herbarium Amboinense is as follows: "5. *Faba marina. Lens phaseoloides; proprii generis.*" As to the propriety of taking up the generic name *Lens* in place of *Entada*, as W. F. Wight proposes,† I have already fully discussed the matter and do not believe that Mr. Wight's proposal merits the approval of botanists.‡

The form described by Rumphius as *Parrana nigra*, Herb. Amb. 5: 7, may be an *Entada* as suggested by Hasskarl, *Neue Schlüssel* (1866) 89, but at any rate it is apparently entirely different from *Entada phaseoloides* Merr. The description is too imperfect to warrant definite determination of its proper position.

**PARKIA** R. Brown

**PARKIA SPECIOSA** Hassk. in *Flora* 25 (1842) Beibl. 55.

*Arbor pete* Rumph. Herb. Amb. 3: 51.

The identification follows Hasskarl, *Neue Schlüssel* (1866) 50, which is undoubtedly correct, as proved by the native names cited by Rumphius and the indicated uses of the plant.

**CYNOMETRA** Linnaeus

**CYNOMETRA CAULIFLORA** Linn. Sp. Pl. (1753) 382.

*Cynomorium* Rumph. Herb. Amb. 1: 163, t. 62.

AMBOINA, from cultivated trees in the town of Amboina, *Robinson Pl. Rumph. Amb. 530*, September 25, 1913, locally known as *namu namu*.

\* Retained name, Brussels Congress; *Gigalobium* Boehm. (1760) is older.

† Contr. U. S. Nat. Herb. 9 (1905) 308.

‡ Philip. Journ. Sci. 5 (1910) Bot. 33; 9 (1914) Bot. 87.

*Cynomorium* is one of the few Rumphian species cited by Linnaeus in the first edition of the *Species Plantarum* (1753) 382, where the reduction to *Cynometra cauliflora* Linn. was made. This is manifestly the correct disposition of it, and Linnaeus has been consistently followed by all succeeding authors.

CYNOMETRA RAMIFLORA Linn. Sp. Pl. (1753) 382.

*Cynomorium silvestre* Rumph. Herb. Amb. 1: 167, t. 63.

AMBOINA, Amahoesoe, Robinson *Pl. Rumph. Amb.* 531, August 28, 1913, on coral limestone cliffs at low altitudes.

Like *Cynomorium*, this Rumphian plant was first reduced by Linnaeus in the original description of *Cynometra ramiflora* Linn., Sp. Pl. (1753) 382. Linnaeus includes in *Cynometra ramiflora* the form with a single pair of leaflets, the Amboina plant, and the form with two pairs of leaflets, *Iripa* of Rheede, apparently the form described by Thwaites as *Cynometra ramiflora* Linn. var. *heterophylla* Thw. The present form, with a single pair of leaflets, has very generally been interpreted as typical *Cynometra ramiflora* Linn., and has been indicated by Prain as var. *genuina*, Journ. As. Soc. Beng. 66<sup>2</sup> (1897) 198.

#### SINDORA Miquel

SINDORA GALEDUPA Prain in Journ. As. Soc. Beng. 66<sup>2</sup> (1897) 483 (type!).

*Sindora inermis* Merr. in Philip. Journ. Sci. 10 (1915) Bot. 314?

*Caju galedupa* Rumph. Herb. Amb. 2: 59, t. 13.

This species is not represented in our Amboina collections. The material on which the description was originally based was from Celebes and from the small islands of Saleyer and Calaua. It grows near the sea and is locally known as *caju galedupa*. Lamarck, *Encycl.* 2 (1788) 594, cites the Rumphian figure and description as a synonym of *Galedupa indica*, but *Galedupa indica* Lam. as described from Sonnerat's specimens is *Pongamia glabra* Vent. = *P. pinnata* (Linn.) Merr. Hamilton, Mem. Wern. Soc. 6 (1832) 291, thought that it might be a species of *Copaifera*. Wight and Arnott, *Prodr.* 1 (1834) 262, placed it in *Pongamia*, with doubt. Walpers, *Ann.* 4 (1857) 581, and Miquel, *Fl. Ind. Bat.* 1<sup>1</sup> (1855) 144, erroneously cite it as a synonym of *Derris forsteniana* Blume. Linnaeus, in *Stickman Herb. Amb.* (1754) 9, *Amoen. Acad.* 4 (1759) 120, placed it under *Connarus* with doubt, but did not refer it to *Connarus monocarpus* Linn. as indicated by Hasskarl, *Neue Schlüssel* (1866) 28. Prain has certainly placed it in its correct genus,

and *Sindora galedupa* Prain is based wholly on Rumphius. The exact status of the species still remains uncertain, but it is manifestly very near *Sindora coriacea* Prain and *S. inermis* Merr. Prain thought that *Sindora sumatrana* Miq. var. *javanica* Koord. & Valetton might be a synonym of *Sindora galedupa*. I suspect that *Sindora inermis* Merr. will have to be reduced to *Sindora galedupa* Prain, when botanical material from the Moluccas is available for comparison. The type of my species was from back of the mangrove swamp at Sarangani, southern Mindanao, there known as *gayugalo*, a native name that is certainly suggestive of *caju galedupa*. It differs from the Rumphian plant in having six rather than eight leaflets, perhaps also in having slightly larger pods, while Rumphius does not figure or describe the prominent aciniform stipules that are characteristic of *Sindora inermis* Merr.

#### TAMARINDUS Linnaeus

**TAMARINDUS INDICA** Linn. Sp. Pl. (1753) 34.

*Tamarindus* Rumph. Herb. Amb. 2: 90, t. 23.

AMBOINA, Robinson Pl. Rumph. Amb. 549, December 1, 1913, from cultivated trees, locally known as *assam*.

This widely distributed and well-known species hardly needs discussion. Linnaeus referred the Rumphian figure to his species, in Stickman Herb. Amb. (1754) 9, in which he has been followed by all succeeding authors.

#### INTSIA Thouars

**INTSIA BIJUGA** (Colebr.) O. Kuntze Rev. Gen. Pl. 1 (1891) 192.

*Macrolobium bijugum* Colebr. in Trans. Linn. Soc. 12 (1819) 359, t. 17.

*Afzelia bijuga* A. Gray Bot. Wilkes U. S. Explor. Exped. (1854) 467, t. 51.

*Outea bijuga* DC. Prodr. 2 (1825) 511.

*Intsia amboinensis* DC. Prodr. 2 (1825) 509 (type!).

*Macrolobium amboinense* Teysm. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 189 (type!).

*Metrosideros amboinensis* Rumph. Herb. Amb. 3: 21, t. 10.

This species is not represented in our Amboina collections, yet the identity of *Metrosideros amboinensis* Rumph., at least for the most part, with the plant commonly known as *Intsia* (*Afzelia*) *bijuga* O. Kuntze is certain. Loureiro, Fl. Cochinch. (1790) 266, cites it with doubt under *Baryxylum rufum*, but *Baryxylum rufum* Lour. manifestly belongs in the genus *Peltophorum*; see Pierre, Fl. Forest. Cochinch. 4: sub. t. 390. Loureiro's description of the flowers applies to *Peltophorum*, of the fruits perhaps to *Intsia*; his specimen in the herbarium of the British Museum

is a *Peltophorum*. Possibly more than one species of *Intsia* are included in the description of *Metrosideros amboinensis*, but it is certainly for the most part the common and widely distributed *Intsia bijuga* O. Kuntze. The figure is poor. The description and figure are the whole basis of *Intsia amboinensis* DC. and of *Macrolobium amboinense* Teysm., the latter not appearing in Index Kewensis.

#### BAUHINIA Linnaeus

**BAUHINIA LINGUA** DC. Prodr. 2 (1825) 516 (type!), excl. syn. Linn.

*Phanera* ? *lingua* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 67.

*Folium linguae* Rumph. Herb. Amb. 5: 1, t. 1.

AMBOINA, Soja and Negri lama, *Robinson Pl. Rumph. Amb.* 522, August, 1913, in fruit, locally known as *tabla mulu*.

*Folium linguae* Rumph. was originally and erroneously reduced by Linnaeus to the Indian *Bauhinia scandens* Linn., in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128, Syst. ed. 10 (1859) 1015, Sp. Pl. ed. 2 (1762) 535, in which he was followed by numerous authors. Loureiro, however, Fl. Cochinch. (1790) 37, cited it under *Phanera coccinea* Lour., the type of which was a Cochin-China plant. *Bauhinia lingua* de Candolle is typified by *Folium linguae* Rumph., the specific name and description being taken wholly from Rumphius. Curiously, de Candolle cites as a synonym *Bauhinia scandens* Linn., Sp. Pl. ed. 1, p. 374, "excl. Rheed. syn.," yet Rheede's description and figure are the whole basis of the Linnean species, for the first reference given by Linnaeus to Ray Suppl. 328 is based wholly on Rheede.

The Amboina specimen is in fruit, but the species manifestly belongs in the section *Phanera*, as is shown by Rumphius's description of the stamens. I have not been able definitely to refer the Amboina specimens to any other described species than *Bauhinia lingua* DC., although it seems probable that the same form has been described under another specific name or names. De Candolle's description calls for a specimen with 3-nerved leaf-lobes, as they are thus presented in most of the leaves in Rumphius's figure. However, the actual specimens have mostly 5- or 6-nerved lobes.

#### BAUHINIA sp.

*Folium linguae litorea alba* Rumph. Herb. Amb. 5: 2.

This form is not represented in our Amboina collections. Hasskarl, Neue Schlüssel (1866) 88, suggests that it may be *Phanera glauca* Benth.=*Bauhinia glauca* Wall., but the cor-

rectness of this reduction is very improbable. Doubtless a future exploration of Amboina will yield material that will definitely determine its status.

## DIALUM Linnaeus

DIALUM INDUM Linn. Mant. 1 (1767) 24.

*Tamarindus altera* Rumph. Herb. Amb. 2: 93.

From the native names cited by Rumphius, *carandje* and *carandjang*, and the references cited, this is *Dialum indum* Linn., but the Javan specimens in Rumphius's garden may not have been this species. It was from Java, not from Amboina. Bennett and Miquel both reduce it to *Dialum indum* Linn.

## CASSIA Linnaeus

CASSIA MIMOSOIDES Linn. Sp. Pl. (1753) 379.

*Amoena moesta* Rumph. Herb. Amb. 6: 147, t. 67. f. 1.

AMBOINA, Batoe gadjah and Soja road, *Robinson Pl. Rumph. Amb. 535*, August 5, 1913, on grassy hillsides, altitude 200 to 250 meters.

*Amoena moesta* was originally reduced by Linnaeus, in *Stickman Herb. Amb. (1754) 28*, with doubt, to *Cassia procumbens* Linn., and later, *Amoen. Acad. 4 (1759) 135*, *Syst. ed. 10 (1759) 1018*, to *Cassia nictitans* Linn., both American species; both reductions are erroneous. De Candolle, *Prodromus 2 (1825) 505*, reduced it correctly to *Cassia angustissima* Lam., but Lamarck's species is a synonym of *Cassia mimosoides* Linn. or at most represents merely a variety of it, *C. mimosoides* Linn. var. *angustissima* (Lam.) Walp.

CASSIA ALATA Linn. Sp. Pl. (1753) 378.

*Herpetica alata* Raf. Sylv. Tellur. (1838) 123.

*Cassia alata* Linn. var. *rumphiana* DC. Prodr. 2 (1825) 492 (type!).

*Herpetica* Rumph. Herb. Amb. 7: 35, t. 18.

AMBOINA, in a sago swamp near the town of Amboina, *Robinson Pl. Rumph. Amb. 546*, July 25, 1913.

The reduction of *Herpetica* to *Cassia alata* was originally made by Linnaeus, *Amoen. Acad. 4 (1759) 136*, is the correct disposition of it, and has been accepted by all authors.

CASSIA TORA Linn. Sp. Pl. (1753) 376.

*Cassia obtusifolia* Linn. Sp. Pl. (1753) 377.

*Gallinaria rotundifolia* Rumph. Herb. Amb. 5: 283, t. 97, f. 2.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 525*, August 15, 1913, at low altitudes near the seashore; also *Rel. Robins. 2480* from Boeton Island, July 13, 1913.

A weed of pantropic distribution, originating in tropical

America. Linnaeus reduced the Rumphian figure to both his *Cassia tora* and *Cassia obtusifolia*, the latter being a synonym of the former. It is considered as *Cassia tora* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1016, and as *Cassia obtusifolia* Linn. in his Species Plantarum, ed. 2 (1762) 539. The early authors, following Linnaeus for the most part, considered it as *Cassia obtusifolia* Linn., but practically all recent authors have properly placed it under *Cassia tora* Linn.

**CASSIA OCCIDENTALIS** Linn. Sp. Pl. (1753) 377.

*Gallinaria acutifolia* Rumph. Herb. Amb. 5: 283, t. 97, f. 1.

AMBOINA, along the beach near the town of Amboina, *Robinson Pl. Rumph. Amb.* 534, August 8, 1913; also represented by *Rel. Robins.* 2519 from Bali Island, July 7, 1913.

Linnaeus originally reduced *Gallinaria acutifolia* to *Cassia sophera* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1017, Sp. Pl. ed. 2 (1762) 542, in which he was consistently followed by all early authors. Vogel, Hasskarl, and Miquel, however, have correctly placed it as *Cassia occidentalis* Linn., which, like the preceding species, is a pantropic weed of American origin.

**CASSIA GLAUCA** Lam. Encycl. 1 (1785) 647.

*Flos flavus* Rumph. Herb. Amb. 4: 63, t. 23.

This species is not represented in our Amboina collections. The figure, however, is unmistakably that of *Cassia glauca* Lam., where it was definitely placed by Miquel and by Hasskarl. Burman f., Fl. Ind. (1768) 96, erroneously reduced it to *Cassia planisilqua*, or at least *Cassia planisilqua* Burm. f. is entirely different from *Cassia planisilqua* Linn. Lamarck, Encycl. 1 (1785) 644, suggests its comparison with *Cassia chinensis* Lam., but it certainly is not this, although the exact status of *Cassia chinensis* Lam. is doubtful; from the description it may be *Cassia occidentalis* Linn., although Bentham thought it might be *Cassia sophera* Linn.

**CASSIA SOPHERA** Linn. Sp. Pl. (1753) 379.

*Soffera* Rumph. Herb. Amb. 4: 55.

This species is not represented in our Amboina collections. The plant described by Rumphius is probably the common and widely distributed *Cassia sophera* Linn., as indicated by Hasskarl, Neue Schlüssel (1866) 75.

**CASSIA FISTULA** Linn. Sp. Pl. (1753) 377.

*Cathartocarpus fistula* Pers. Syn. 1 (1805) 459.

*Cassia fistula* Rumph. Herb. Amb. 2: 83, t. 21.

This common species is not represented in our Amboina collections, but it is so well known that it hardly needs discussion. Rumphius's plate is good. It was first reduced by Linnaeus, in Stickman Herb. Amb. (1754) 9, and has been consistently cited under *Cassia fistula* Linn. by all subsequent authors.

**CASSIA JAVANICA** Linn. Sp. Pl. (1753) 379.

*Canna fistula javanica* Rumph. Herb. Amb. 2: 86.

*Cassia fistula silvestris* Rumph. Herb. Amb. 2: 88, t. 22.

This species is not represented in our Amboina collections. There is very little doubt, however, that the first of the Rumphian names cited above is referable to *Cassia javanica*, although *Cassia fistula silvestris* may include two different species. The reduction of t. 22 to *Cassia javanica* Linn. was first made by Lamarck, Encycl. 1 (1785) 649, and has been very generally accepted. Roxburgh, Fl. Ind. ed. 2, 2 (1832) 337, referred it to *Cassia bacillus* Gaertn., which, however, is generally considered to be a synonym of *Cassia javanica* Linn. Other names involved in the reduction are *Cassia marginata* Roxb. and *C. nodosa* Ham.

The plants briefly discussed by Rumphius, op. cit. 89, under the names *bilalangk*, *cajudju*, and *ke ule* are indeterminable from data at present available. Hasskarl, Neue Schlüssel (1866) 30, has suggested that the second one may be a *Pterocarpus* and that the other two may be referable to *Cassia*. The only logical method of determining these forms is to carry on field work with special reference to the native names.

#### CAESALPINIA Linnaeus

**CAESALPINIA SAPPAN** Linn. Sp. Pl. (1753) 381.

*Lignum sappan* Rumph. Herb. Amb. 4: 56, t. 21.

AMBOINA, Waë, Robinson Pl. Rumph. Amb. 568, November 26, 1913, cultivated, locally known as *lolan tuni*.

This well-known species hardly needs discussion. *Lignum sappan* was originally reduced to *Caesalpinia sappan* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 15, and has been consistently so cited by all other authors who have had occasion to quote Rumphius.

**CAESALPINIA PULCHERRIMA** (Linn.) Sw. Obs. (1791) 166.

*Poinciana pulcherrima* Linn. Sp. Pl. (1753) 380.

*Crista pavonis* Rumph. Herb. Amb. 4: 53, t. 20.

AMBOINA, Robinson Pl. Rumph. Amb. 542, September, 1913, from cultivated plants in the town of Amboina, including both the red and yellow and the yellow-flowered forms.

\* This commonly cultivated plant, of tropical American origin, is well figured by Rumphius. *Crista pavonis* was first reduced by Linnaeus, to *Poinciana pulcherrima*, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1018; but in the second edition of his Species Plantarum (1762) 544, he erroneously referred it to *Poinciana bijuga* Linn.

**CAESALPINIA CRISTA** Linn. Sp. Pl. (1753) 380, pro maiore parte, excl.

*Fl. Zeyl.* 157 quoad *Herm. zeyl.* 12.

*Guilandina bonducella* Linn. Sp. Pl. ed. 2 (1762) 545.

*Guilandina bonduc* Linn. Sp. Pl. (1753) 381, p. p., excl. *Fl. Zeyl.* 156.

*Caesalpinia bonducella* Flem. Asiat. Res. 11 (1810) 159.

*Guilandina crista* Small Fl. Southeast. U. S. (1905) 591.

*Guilandina bonduc* Linn. var. *minus* DC. Prodr. 2 (1825) 480.

*Caesalpinia jayabo* var. *cyanosperma* Maza in Anal. Soc. Esp. Hist. Nat. 19 (1890) 234.

*Frutex globulorum majorum* Rumph. Herb. Amb. 5: 92, t. 49, f. 1.

The widely distributed plant commonly known as *Caesalpinia bonducella* Flem. is not represented in our Amboina collections. There is no question whatever as to the identity of the plant Rumphius figures, as his illustration is an excellent one. The synonymy, like that of *Caesalpinia jayabo* Maza (*C. bonduc* auctt.), is exceedingly complicated and was first adjusted by Urban, Symb. Antil. 2 (1900) 269. I agree with Doctor Urban in the application of the Linnean name in spite of the fact that the first reference given by Linnaeus in the original description of the species applies to the plant commonly known as *Caesalpinia nuga* (Linn.) Ait., as originally pointed out by Trimen, Fl. Ceyl. 2 (1894) 99; see under *Caesalpinia nuga* Ait., infra, page 261. Skeels, Science N. S. 37 (1913) 921, would interpret *Fl. Zeyl.* 157 strictly on the basis of *Hermann zeyl.* 12, as the type of *Caesalpinia crista* Linn., thus making the species exactly the same as *Caesalpinia nuga* (Linn.) Ait., reducing the latter as a synonym. At the same time he would interpret *Fl. Zeyl.* 156 as the type of *Guilandina bonduc* Linn., thus making *Caesalpinia bonduc* the proper name for the plant described in most botanical works as *Caesalpinia bonducella* Flem.



**CAESALPINIA JAYABO** Maza in Anal. Soc. Esp. Hist. Nat. 19 (1890) 234.

*Guilandina bonduc* Linn. Sp. Pl. (1753) 381, p. p., quoad *Fl. Zeyl.* 156.

*Caesalpinia bonduc* auctt.

*Guilandina bonduc* Linn. var. *majus* DC. Prodr. 2 (1825) 480.

*Guilandina major* Small Fl. Southeast. U. S. (1903) 591.

*Caesalpinia glabra* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 54, non

*Guilandina glabra* Mill.

*Frutex globulorum femina* Rumph. Herb. Amb. 5: 89, t. 48.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb.* 564, November 25, 1913, climbing over trees at low altitudes.

The reduction of *Frutex globulorum femina* was first made by Linnaeus, who placed it as a synonym of *Guilandina bonduc* Linn. in his *Species Plantarum* ed. 2 (1762) 545, and most authors have been content to accept this name as the proper one for the species. The synonymy is very complicated, but *Guilandina bonduc* Linn. as originally published by Linnaeus in 1753 is for the most part identical with *G. bonducella* Linn. as published by Linnaeus in the year 1762, and both are, for the most part, the same as *Caesalpinia crista* Linn. 1753. The synonymy has been very fully discussed by Urban, *Symb. Antil.* 2 (1900) 269, 272. *Guilandina bonduc* Linn. var. *majus* DC. was based on the Linnean description, as given in the second edition of the *Species Plantarum*, and the figure of Rumphius cited above and in turn is the basis of *Guilandina major* Small. *Guilandina glabra* Mill. is an entirely different species, if Miller's short description be correct, and I erred in 1910 in proposing to take up this specific name. It is apparent that Maza's specific name *Caesalpinia jayabo* is the earliest valid one for this pantropic plant. *Caesalpinia bonduc* Roxb., based on *Guilandina bonduc* Linn., is certainly untenable and should be abandoned.

**CAESALPINIA NUGA** (Linn.) Ait. Hort. Kew. ed. 2, 3 (1811) 32.

*Guilandina nuga* Linn. Sp. Pl. ed. 2 (1762) 546 (type!).

*Caesalpinia crista* Linn. Sp. Pl. (1753) 380, pro minore parte, *Fl. Zeyl.* 157 quoad *Herm. zeyl.* 12.

*Nugae silvarum litoreae et terrestres* Rumph. Herb. Amb. 5: 94, t. 50.

AMBOINA, Eri, *Robinson Pl. Rumph. Amb.* 539, September 22, 1913, along the seashore; Amahoesoe, *Robinson Pl. Rumph. Amb.* 538, August 13, 1913, in thickets at an altitude of about 30 meters, locally known as *galachi* and *pohon baduri*.

The Rumphian reference is the whole basis of *Guilandina nuga* Linn.=*Caesalpinia nuga* (Linn.) Ait. and has been interpreted as such by all authors. In this connection it is to be noted that *Caesalpinia crista* Linn., Sp. Pl. (1753) 380, is, in part, the same as *Caesalpinia nuga* Ait. The first reference in the original description of the species is to *Fl. Zeyl.* No. 157,

and Hermann's specimen is not *Caesalpinia crista* Linn. as currently interpreted, but is *C. nuga* Ait.; see Trimen, Fl. Ceyl. 2 (1894) 99. However, the other references in the Species Plantarum and the first reference in the Flora Zeylanica, *Pluk. Alm. 4. t. 2 f. 2*, are apparently *Caesalpinia crista* Linn. as generally understood, so that *Caesalpinia crista* Linn. is here maintained for the plant so described by all authors; see page 260.

#### ORMOSIA \* Jackson

**ORMOSIA CALAVENSIS** Azaola ex Blanco Fl. Filip. ed. 2 (1845) 230.

*Pongamia* (?) *corallaria* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 149 (type!).

*Corallaria latifolia* Rumph. Herb. Amb. 3: 175, t. 110.

This characteristic species is not represented in our Amboina collections. The reduction to *Ormosia calavensis* Azaola is made after a careful study of Rumphius's figure and description and a comparison with a very full series of specimens from northern Luzon to southern Mindanao and from the Palau Islands. *Corallaria latifolia* is the whole basis of *Pongamia corallaria* Miq., so this specific name is available should future botanical exploration of the Moluccas yield material that shows the plant Rumphius described to be specifically distinct from that of the Philippine and the Palau Islands. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 63, referred it to the genus *Macropteris*, this being a synonym of *Ormosia*.

#### SOPHORA Linnaeus

**SOPHORA TOMENTOSA** Linn. Sp. Pl. (1753) 373.

*Anticholerica* Rumph. Herb. Amb. 4: 60, t. 22.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 545, October 31, 1913, along the seashore.

*Anticholerica* of Rumphius has been confused by most authors, following Linnaeus, with *Sophora heptaphylla* Linn. It is typical *Sophora tomentosa* Linn. It was originally reduced by Linnaeus to *Sophora heptaphylla*, in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1015, Sp. Pl. ed. 2 (1762) 533, in which he was followed by all authors up to 1825, when de Candolle, Prodr. 2: 96, suggested that the Rumphian figure referred to *Sophora tomentosa* Linn. *Sophora heptaphylla* Linn. is in itself a mixture. The type is Fl. Zeyl. 104, and Hermann's specimen on which it is based is *Derris sinuata* Benth. = *Derris heptaphylla* (Linn.) Merr., page 273.

\* Retained name, Vienna Code; *Toulichiba* Adans. (1763) is older.

## CROTALARIA Linnaeus

CROTALARIA RETUSA Linn. Sp. Pl. (1753) 715.

*Crotalaria* I major Rumph. Herb. Amb. 5: 278, t. 96, f. l.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb.* 547, September 4, 1913, near the seashore; also represented by *Rel. Robins.* 2464 from Macassar, Celebes.

The reduction of the form of *Crotalaria* figured by Rumphius to *Crotalaria retusa* Linn. was first made by Linnaeus, in *Stickman Herb. Amb.* (1754) 21, *Amoen. Acad.* 4 (1759) 130, *Syst. ed.* 10 (1759) 1159, *Sp. Pl. ed.* 2 (1763) 1004, and is certainly the correct disposition of it.

CROTALARIA QUINQUEFOLIA Linn. Sp. Pl. (1753) 716.

*Crotalaria* II minor Rumph. Herb. Amb. 6: 278.

This species is not represented in our Amboina collections. The reduction of the Rumphian description follows Hasskarl, *Neue Schlüssel* (1866) 121, which is manifestly the correct disposition of it.

CROTALARIA CHINENSIS Linn. Syst. ed. 10 (1759) 1158.

*Crotalaria* III *agrestis* Rumph. Herb. Amb. 5: 297.

AMBOINA, Soja road, *Robinson Pl. Rumph. Amb.* 468, August 1, 1913, on grassy hillsides, altitude about 200 meters.

The identity of the recently collected material with *Crotalaria III agrestis* is somewhat doubtful, as Rumphius's description is short and imperfect. It cannot possibly be *Crotalaria verrucosa* Linn., as placed by Hasskarl, *Neue Schlüssel* (1866) 121.

CROTALARIA LINIFOLIA Linn. f. Suppl. (1781) 322.

*Phaseolus montanus* III Rumph. Herb. Amb. 6: 146.

This suggested identification of *Phaseolus montanus* III is scarcely more than a guess, but the description, with a slight modification of the Latin translation, seems to apply very closely to the form of *Crotalaria linifolia* Linn. f. described by Vogel as *C. stenophylla* and by Matsumura as *C. formosana*. In the Dutch description the fruits are described as "met twee ruggens," which I translate "with two ridges." The Latin description reads "cum binis alis," translated by Hasskarl as "bialatis." With the modification of the description suggested by translating "ruggens" as "ridges" instead of as "wings," there is nothing in the entire description that does not apply to *Crotalaria stenophylla* Vogel.

*Phaseolus montanus* IV Rumph. l. c. is apparently but a dwarfed form of *Crotalaria linifolia* Linn. f.

## INDIGOFERA Linnaeus

INDIGOFERA TINCTORIA Linn. Sp. Pl. (1753) 751.

*Indicum* Rumph. Herb. Amb. 5: 220, quoad descr. (excl. t. 80=*I. suffruticosa* Mill.).

Probably both *Indigofera tinctoria* Linn. and *I. suffruticosa* Mill. (*I. anil* Linn.) are included in the Rumphian discussion of *Indicum*, but the description of the pods as "digiti articulum longae" applies unmistakably to *Indigofera tinctoria* Linn., not to *I. suffruticosa* Mill. The figure, however, unmistakably represents *Indigofera suffruticosa* Mill., as shown by the relatively short, strongly curved pods. *Indicum* was reduced by Linnaeus to *Indigofera tinctoria* Linn., in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1171, Sp. Pl. ed. 2 (1763) 1061, in which he has been followed by most authors. Lamarck, Encycl. 3 (1789) 244, referred it to *Indigofera anil* Linn.=*I. suffruticosa* Mill., which is the correct disposition of the figure. Other authors have referred it to *Indigofera anil* Linn. var. *orthocarpa* DC., *I. tinctoria* Linn. var. *macrocarpa* DC., and *I. tinctoria* Linn. var. *brachycarpa* DC.

INDIGOFERA SUFFRUTICOSA Mill. Gard. Dict. ed. 8 (1768) no. 2.

*Indigofera anil* Linn. Mant. 2 (1771) 272.*Indicum* Rumph. Herb. Amb. 5: quoad t. 80.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 195. August 8, 1913, near the seashore.

This is the form figured by Rumphius, but so far as the description goes the essential characters by which *Indigofera tinctoria* Linn. and *I. suffruticosa* Mill. are distinguished are those of the former species. As indicated above probably both are included in the general discussion of *Indicum*.

The several forms briefly described under *Indicum* I consider to be indeterminable, although Hasskarl, Neue Schlüssel (1866) 113, indicates their possible positions as follows: *Indicum silvestre* Rumph. Herb. Amb. 5: 222=*Indigofera* sp.?; *Indicum silvestre e Madagascar* Rumph. l. c. 223=*Indigofera linifolia* Retz. var. *angustissima* Miq.?; *Indicum brasilianum* Rumph. l. c. 224=*Indigofera* sp.?; *Indicum spurium* Rumph. l. c. 224=*Indigofera celebica* Miq.?

## TEPHROSIA \* Persoon

TEPHROSIA sp. aff. *T. purpurea* Pers.*Phaseolus montanus* ! Rumph. Herb. Amb. 6: 146.

No representative of the genus *Tephrosia* occurs in our Amboina collections. The plant described by Rumphius, however,

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\* Retained name, Vienna Code; *Cracca* Linn. (1763) is older.

is manifestly a *Tephrosia*, and it is probably a form of the widely distributed *T. purpurea* Pers. Hasskarl, Neue Schlüssel (1866) 176, considers that it represents a species near *Tephrosia timoriensis* DC., but de Candolle's species is generally considered to be a synonym of *T. purpurea* Pers.

*Phaseolus montanus* alter Rumph., l. c. 146, may also represent a species of *Tephrosia*. The description, however, is too short and imperfect to warrant an identification of it with the data now available.

#### SESBANIA \* Persoon

**SESBANIA SESBAN** (Linn.) Merr. in Philip. Journ. Sci. 7 (1912) Bot. 235.

*Aeschynomene sesban* Linn. Sp. Pl. (1753) 714.

*Coronilla sesban* Willd. Sp. Pl. 3 (1806) 1147.

*Sesban aegyptiacus* Poir. in Lam. Encycl. 7 (1806) 128 (type!).

*Aeschynomene moluccana* Kostel. Allg. Med.-Pharm. Flora 4 (1835) 1285.

*Emerus sesban* O. Kuntze Rev. Gen. Pl. 1 (1891) 180.

*Gajatus niger* Rumph. Herb. Amb. 4: 64, t. 24.

This species is not represented in our Amboina collections. The Rumphian figure was erroneously reduced by Linneaus to *Aeschynomene indica* Linn., in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1158, Sp. Pl. ed. 2 (1763) 1061, in which he was generally followed by the older authors. Wight and Arnott, Prodr. (1834) 219, placed it under *Aeschynomene roxburghii* Spreng., a synonym of *A. indica* Linn. It is apparently the type of *Aeschynomene moluccana* Kostel. (publication not seen by me). Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 287, thought it might be referable to *Sesbania cochinchinensis* (Lour.) DC., which is probably a synonym of *Sesbania sesban* (Linn.) Merr. Teysmann correctly placed it as a synonym of *Sesbania aegyptiaca* Pers., which manifestly is a synonym of *Sesbania sesban* (Linn.) Merr. From Rumphius's description it is exactly the form described by Wight and Arnott, Prodr. (1834) 214, as *Sesbania aegyptiaca* Pers. var. *bicolor* W. & A.†

**SESBANIA CANNABINA** (Retz.) Pers. Syn. 2 (1807) 316.

*Aeschynomene cannabina* Retz. Obs. 5 (1789) 26.

*Agati cannabina* Desv. Journ. Bot. 1 (1813) 120.

*Gajatus luteus* Rumph. Herb. Amb. 4: 64.

This species is not represented in our Amboina collections.

\* Retained name, Brussels Congress; *Sesban* Adans. and *Agati* Adans. (1763) are older.

† See Prain in Journ. As. Soc. Beng. 66<sup>2</sup> (1897) 367.

Hasskarl, Neue Schlüssel (1866) 76, discusses it under *Aeschynomene indica* Linn. var. *aspera* Hassk. and under *Sesbania polyphylla* Miq. The Rumphian description calls for a plant with larger leaves and longer pods than *Gajatus niger* (*Sesbania sesban* Merr.) and with yellow flowers, and I believe that the plant described is unmistakably *Sesbania cannabina* (Retz.) Pers. It was introduced into Amboina in Rumphius's time. The form from Bali with white flowers, merely mentioned by Rumphius, is indeterminable, the only character given being that the flowers are white.

**SESBANIA GRANDIFLORA** (Linn.) Pers. Syn. 2 (1807) 316.

*Robinia grandiflora* Linn. Sp. Pl. (1753) 722.

*Aeschynomene grandiflora* Linn. Sp. Pl. ed. 2 (1763) 1060.

*Coronilla grandiflora* Willd. Sp. Pl. 3 (1800) 1145.

*Agati grandiflora* Desv. in Journ. Bot. 1 (1813) 120, t. 4, f. 6.

*Turia* Rumph. Herb. Amb. 1: 188, t. 76.

*Turia minor* Rumph. Herb. Amb. 1: 190, t. 77.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb. 532*, September 27, 1913, at low altitudes, locally known as *turi*.

*Turia* was originally reduced by Linnaeus to *Aeschynomene grandiflora* Linn. in his Species Plantarum, ed. 2 (1763) 1060, and the figure has very generally been cited by various authors under one or the other of the synonyms cited above. *Turia minor* Rumph. is the form with reddish or purplish flowers, considered by early authors to represent a distinct species, *Sesbania coccinea* (Linn. f.) Pers. (*Aeschynomene coccinea* Linn. f., *Coronilla coccinea* Willd., *Sesban coccinea* Poir., *Agati coccinea* DC.), and by others considered as merely a variety of *Sesbania grandiflora* Pers. It is manifestly but a color form of the common and widely distributed *Sesbania grandiflora* (Linn.) Pers.

#### ORMOCARPUM \* de Candolle

**ORMOCARPUM ORIENTALE** (Spreng.) comb. nov.

*Parkinsonia orientalis* Spreng. Syst. 4 (1827) Cur. Post. 170 (type!).

*Ormocarpum glabrum* Teyssm. & Binn. in Tijdschr. Ned. Ind. 27 (1854) 56.

*Solulus arbor* Rumph. Herb. Amb. 3: 200, t. 128.

This species is not represented in our Amboina collections, but according to Rumphius the plant is not a native of Amboina, occurring there as an introduced and planted one. Loureiro, Fl. Cochinch. (1790) 454, cites *Solulus arbor* as representing his *Diphaca cochinchinensis*=*Ormocarpum cochinchinense* (Lour.)

\* Retained name, Vienna Code; *Diphaca* Lour. (1790) is older.

Merr. (*O. sennoides* DC.), but the Rumphian figure and description manifestly apply to *Ormocarpum glabrum* T. & B. The oldest specific name, however, if this form be maintained as distinct from *Ormocarpum cochinchinense*, is that supplied by *Parkinsonia orientale* Spreng., which was based wholly on the Rumphian figure and description.

#### ARACHIS Linnaeus

ARACHIS HYPOGAEA Linn. Sp. Pl. (1753) 741.

*Chamaebalanus japonica* Rumph. Herb. Amb. 5: 426, t. 156, f. 2.

The common peanut is not represented in our Amboina collections, although doubtless it is still cultivated there as it is in most warm countries. The reduction of the Rumphian figure was first made by Linnaeus, in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1167, which has been followed by all authors except Loureiro, who proposed to call it *Arachis asiatica* Lour., Fl. Cochinch. (1790) 430. Loureiro's species is manifestly a synonym of *Arachis hypogaea* Linn.

#### DESMODIUM \* Desvâux

DESMODIUM ORMOCARPOIDES DC. Prodr. 2 (1825) 327, non auct. plur.

*Desmodium ormocarpoides* Desv. in Mém. Soc. Linn. Paris 1825 (1826) 307, non auct. plur.

*Hedysarum adhaerens* Poir. in Lam. Encycl. Suppl. 5 (1817) 15, non Vahl.

*Desmodium dependens* Blume ex Miq. Fl. Ind. Bat. 1<sup>a</sup> (1855) 248.

*Phaseolus montanus* Rumph. Herb. Amb. 6: quoad t. 66 p. p. (excl. descr.!).

AMBOINA, Way tommo, Robinson Pl. Rumph. Amb. 555, August 16, 1913. in light woods at low altitudes; Amahoesoe, Pl. Rumph. Amb. 556, August 30, 1913, at low altitudes, locally known as *rumpit makal*.

The plant figured by Rumphius does not agree with any of the eight forms described under the name *Phaseolus montanus*. Burman f., Fl. Ind. (1768) 164, referred the figure to *Hedysarum gangeticum* Linn.=*Desmodium gangeticum* (Linn.) DC., in which he was followed by numerous authors; this reduction, however, is entirely wrong. The figure is, for the most part, an excellent representation of *Desmodium dependens* Blume, which was originally described from specimens originating in the Moluccas and in New Guinea, which Gagnepain, Not. Syst. 3 (1916) 256, has recently shown to be exactly the form described by de Candolle and by Desvaux as *Desmodium ormocarpoides*,

\* Retained name, Vienna Code; *Meibomia* Adans. (1763) is older.

a species that has consistently been misinterpreted by modern authors on account of de Candolle's original insufficient description. The drawing apparently represents two species. The infructescence and fruits shown on the right-hand branch are distinctly different from those shown on the left-hand branch; the former is apparently *Desmodium ormocarpoides* auct., non DC.=*Desmodium zonatum* Miq.,\* and the latter is typical *D. ormocarpoides* DC. (*D. dependens* Blume).

**DESMODIUM UMBELLATUM** (Linn.) DC. Prodr. 2 (1825) 325.

*Hedysarum umbellatum* Linn. Sp. Pl. (1753) 747.

*Aeschynomene arborea* Linn. Sp. Pl. (1753) 713, non *Desmodium arboreum* Sweet.

*Dendrolobium umbellatum* W. & A. ex Benth. Pl. Jungh. (1852) 216.

*Meibomia umbellata* O. Kuntze Rev. Gen. Pl. 1 (1891) 197.

*Folium crocodili latifolium* Rumph. Herb. Amb. 4: 112, t. 52.

*Folium crocodili parvifolium* Rumph. l. c. 113.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 560, October 21, 1913, along the seashore; Ayer putri, Robinson Pl. Rumph. Amb. 559, July 28, 1913.

*Folium crocodili* Rumph. was originally reduced by Linnaeus to *Hedysarum umbellatum* Linn., in Stickman Herb. Amb. (1754) 17, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 1170, Sp. Pl. ed. 2 (1763) 1053, which, as *Desmodium umbellatum* (Linn.) DC., is certainly the correct disposition of it. Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 263, erroneously placed it under *Dendrolobium cephalotes* Benth. The two forms described by Rumphius as *latifolium* and *parvifolium* are manifestly referable to the same species.

**DESMODIUM TRIQUETRUM** (Linn.) DC. Prodr. 2 (1825) 326.

*Hedysarum triquetrum* Linn. Sp. Pl. (1753) 746.

*Pteroloma triquetrum* Benth. in Miq. Pl. Jungh. (1852) 220.

*Meibomia triquetra* O. Kuntze Rev. Gen. Pl. 1 (1891) 197.

*Phaseolus montanus* VI, VII Rumph. Herb. Amb. 6: 146.

AMBOINA, Soja road, Robinson Pl. Rumph. Amb. 557, August 1, 1913, on hillsides, altitude 200 to 300 meters.

The reduction of *Phaseolus montanus* VI to *Hedysarum triquetrum* Linn. was first made by Loureiro, Fl. Cochinch. (1790) 448, which, as *Desmodium triquetrum* (Linn.) DC., is certainly the correct disposition of it. *Phaseolus montanus* VII was first

\* At the time of publication of this the continuation of Gagnepain's paper in Not. Syst. 3, no. 9, has not reached me, so I am not certain that *Desmodium zonatum* Miq. is the name selected by him for *Desmodium ormocarpoides* auct., non DC.



reduced here by Linnaeus, Sp. Pl. ed. 2 (1763) 1052, which is probably the correct disposition of it, although not certain.

**DESMODIUM GANGETICUM** (Linn.) DC. Prodr. 2 (1825) 327.

*Hedysarum gangeticum* Linn. Sp. Pl. (1753) 746.

*Meibomia gangetica* O. Kuntze Rev. Gen. Pl. 1 (1891) 196.

**Crotalaria montana** V Rumph. Herb. Amb. 6: 146? (haud t. 66 quae est *Desmodium ormocarpoides* DC. et *D. zonatum* Miq.).

AMBOINA, Batoe gadjah, *Robinson Pl. Rumph. Amb.* 558, August 5, 1913, on grassy hillsides, altitude about 150 meters. Also represented by *Rel. Robins.* 2537 from Bali Island, July 7, 1913.

The reduction of *Crotalaria montana* V to *Desmodium gangeticum* (Linn.) DC. is rather unsatisfactory, but follows Burman f., Loureiro, Poiret, de Candolle, and other authors. All, however, apparently based their conception of the Rumphian plant chiefly if not wholly upon the figure indicated by Rumphius as *Phaseolus montanus*. None of the eight forms actually described by Rumphius under the heading *Phaseolus montanus* agrees with the figure, which unmistakably is *Desmodium ormocarpoides* DC.; see page 267. The Rumphian description of *Crotalaria montana* V applies to *Desmodium gangeticum* DC. sufficiently closely except in the description of the leaves as "semi digitum longa, ac pennam lata."

*Phaseolus montanus* VIII Rumph., Herb. Amb. 6: 146, is indeterminable from any data at present available. It was from Macassar, Celebes, where it was known as *tsjeme tsjeme*. Hasskarl, Neue Schlüssel (1866) 176, suggests that it may be a species of *Sophora* near *S. glabra* Hassk.

#### **PSEUDARTHRIA** Wight and Arnott

**PSEUDARTHRIA VISCIDA** (Linn.) W. & A. Prodr. (1834) 209.

*Hedysarum viscidum* Linn. Sp. Pl. (1753) 747.

*Desmodium viscidum* DC. Prodr. 2 (1825) 336.

*Desmodium timoriense* DC. l. c. 327.

**Phaseolus adhaerens** Rumph. Herb. Amb. 6: 150.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 554, August 30, 1913, at low altitudes, locally known as *bunga pasang pasang*. Also represented by *Rel. Robins.* 2499 from Boeton, and *Rel. Robins.* 2536 from Bali, July, 1913.

The identification of *Phaseolus adhaerens* Rumph. with *Pseudarthria viscida* W. & A. is not certain. The Rumphian plant may be a *Desmodium* rather than a *Pseudarthria*. Hasskarl, Neue Schlüssel (1866) 177, considers that it is *Desmodium stipulaceum* DC. var. *aparine* (Hassk.) Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 252.

## DALBERGIA \* Linnaeus f.

DALBERGIA PARVIFLORA Roxb. Hort. Beng. (1814) 98, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 225.

*Dalbergia zollingeriana* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 130.

*Lacca lignum* Rumph. Herb. Amb. 5: 17, t. 13.

This species is not represented in our Amboina collections. The reduction of *Lacca lignum* to *Dalbergia parviflora* Roxb. is certainly correct and was first suggested, as *D. zollingeriana* Miq., by Teysmann in a letter to Hasskarl, cited by Hasskarl, Neue Schlüssel (1866) 90.†

This species of *Dalbergia* extends from Indo-China and the Malay Peninsula to Sumatra, Borneo, Java, Celebes, Halmaheira, and Amboina.

The forms briefly described by Rumphius as *Lacca lignum ruffum*, Herb. Amb. 5: 18, *L. lignum femina*, l. c. 20, and *L. lignum e Java*, l. c. 20, are indeterminable from data now available and may be referable to *Dalbergia* or to other genera of the *Leguminosae*, or they may even belong in other families.

## PTEROCARPUS Linnaeus

PTEROCARPUS INDICUS Willd. Sp. Pl. 3<sup>3</sup> (1800) 904 (type!).

*Lingoum rubrum* Rumph. Herb. Amb. 2: 205, t. 70.

AMBOINA, Hoenoe, Robinson Pl. Rumph. Amb. 550, October 18, 1913, in remnants of forests, altitude 200 meters, locally known as *kayu lingua*.

This was originally reduced by Linnaeus merely to the genus *Pterocarpus*, in Stickman Herb. Amb. (1754) 10, but in his Species Plantarum, ed. 2 (1763) 1662, he erroneously placed it as a synonym of *Pterocarpus draco* Linn. It is the entire basis of *Pterocarpus indicus* Willd., which species must be interpreted wholly from the Rumphian figure and description. The species is widely distributed in the Malayan region and very generally has been correctly interpreted by modern botanists, as Rumphius's figure of the plant is an excellent one.

Probably referable here are the forms described by Rumphius, l. c. 206, 209, 210, as *Lingoum II album* and *III rubrum*.

PTEROCARPUS PAPUANUS F. Muell. in Austral. Journ. Pharm. 1 (1886) 123; Bot. Centralbl. 27 (1886) 21?

*Lingoum saxatile* Rumph. Herb. Amb. 2: 210.

*Lingoum saxatile* Rumph., apparently a *Pterocarpus*, should

\* Retained name, Vienna Code; *Amerimnon* P. Br. (1756) is older.

† See Prain, D., in Ann. Bot. Gard. Calcutta 10<sup>1</sup> (1904) 34, t. 8, who cites specimens from Amboina and who also cites *Lacca lignum* Rumph. as a synonym of *Dalbergia parviflora* Roxb.

be a very characteristic species, judging from the description of the fruits, which are stated to be twice as large as those of *Pterocarpus indicus* Willd., "quatuor vel quinque digitos transversales lati." Hasskarl, Neue Schlüssel (1866) 41, has suggested that it may be *Pterocarpus obtusatus* Miq., which after all may be the correct disposition of it. Miquel's description is so very imperfect that no definite conception of his species can be gained from the description alone. I suggest that it may be F. Mueller's species, which is supposed to have large fruits. *Pterocarpus blancoi* Merr. should also be very closely allied. Dr. Alfred J. Ewart has kindly sent me a leaflet from the type of *Pterocarpus papuanus* F.-Muell., which is preserved in the national herbarium at Melbourne. The leaflet very closely resembles those of *Pterocarpus indicus* Willd. Doctor Ewart states that there are no fruits with the specimen, and the size of the fruits is not indicated by Mueller in the original description of the species.

**PTEROCARPUS SANTALINUS** Linn. f. Suppl. (1881) 318.

*Santalum rubrum* Rumph. Herb. Amb. 2: 47.

This is undoubtedly the correct disposition of *Santalum rubrum*, as suggested by Hasskarl, Neue Schlüssel (1866) 47. It was not from Amboina.

**PONGAMIA** \* Ventenat

**PONGAMIA PINNATA** (Linn.) comb. nov.

*Cytisus pinnatus* Linn. Sp. Pl. (1753) 741.

*Robinia mitis* Linn. Sp. Pl. ed. 2 (1763) 1044.

*Galedupa indica* Lam. Encycl. 2 (1786) 594, excl. syn. *Caju galedupa* Rumph.

*Dalbergia arborea* Willd. Sp. Pl. 3 (1803) 901.

*Pongamia glabra* Vent. Jard. Malm. 1 (1803) 28, t. 28.

*Galedupa pinnata* Taub. in Engl. & Prantl Nat. Pflanzenfam. 3<sup>3</sup> (1891) 344.

*Caju pinnatum* O. Kuntze Rev. Gen. Pl. 1 (1891) 167.

*Pongamia mitis* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 101.

*Malaparius* Rumph. Herb. Amb. 3: 183, t. 117.

*Malaparius e Nussanive* Rumph. Herb. Amb. 5: 184.

AMBOINA, Eri and Amahoesoe, *Robinson Pl. Rumph. Amb. 243*, August and September, 1913, along the seashore, with normal fruits and with galls (*Malaparius e Nussanive* Rumph.!).

Desrouss, in Lamarck Encycl. 3 (1791) 689, thought that *Malaparius* might be near *Pterocarpus*; and Loureiro, Fl. Cochinch. (1790) 431, erroneously cites it under his *Pterocarpus flavus*, a species of doubtful status, this reduction being followed, how-

\* Retained name, Vienna Code; *Galedupa* Lam. (1786) is older.

ever, by Poiret, de Candolle, Don, Dietrich, Miquel, and a few other authors. *Malaparius*, however, is no *Pterocarpus*, but is manifestly identical with the plant commonly called *Pongamia glabra* Vent. The Rumphian figure is an excellent one, and the description applies perfectly except as to the statement that the flowers are yellow; this may have been due to a mixture of material, or Rumphius may have had old flowers. The flowers are usually white or pink, turning somewhat yellowish in age. Prain, Journ. As. Soc. Beng. 66<sup>2</sup> (1897) 95, seems to have been the first author correctly to reduce *Malaparius* to *Pongamia*. *Malaparius flavus* Miq., Fl. Ind. Bat. 1 (1858) 1082, based on Sumatran specimens, the generic name from Rumphius, is apparently the form of *Pongamia pinnata* (Linn.) Merr. described by Hasskarl as *Pongamia xerocarpa* (*P. glabra* Vent. var. *xerocarpa* Prain).

I have taken up the earliest Linnean specific name for this widely distributed species, as I am now convinced that the specimen in the Linnean herbarium, which is the common *Pongamia glabra* Vent., is the actual type of *Cytisus pinnatus* Linn., as indicated by the fact that Linnaeus not only gives a bibliographical reference to Plukenet, but also adds a short description manifestly taken from an actual specimen.

#### DERRIS \* Loureiro

**DERRIS TRIFOLIATA** Lour. Fl. Cochinch. (1790) 433.

*Robinia uliginosa* Roxb. ex Willd. Sp. Pl. 3 (1800) 1133.

*Dalbergia heterophylla* Willd. l. c. 901.

*Pongamia uliginosa* DC. Prodr. 2 (1825) 416.

*Derris forsteniana* Blume ex Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 144, t. 3.

*Tuba siliquosa* Rumph. Herb. Amb. 5: 41, t. 25, f. 2.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 537, October 25, 1913, along tidal streams, locally known as *daun talahohor*.

Rumphius's figure is an excellent one of the widely distributed form commonly known as *Derris uliginosa* Roxb., but for which I maintain the earlier name, *Derris trifoliata* Lour. Loureiro's type is not extant, at least no specimen of his species is among his plants in the herbarium of the British Museum. *Dalbergia heterophylla* Willd. is exactly the same as *Derris uliginosa* Roxb. and has priority over Roxburgh's name in case *Derris trifoliata* Lour. be abandoned. Hasskarl, Neue Schlüssel (1866) 93, reduced *Tuba siliquosa* Rumph. to *Derris forsteniana* Blume, which is a synonym of the above species.

\* Retained name, Vienna Code; *Salken* Adans. and *Solori* Adans. (1763). *Deguelia* Aubl. (1775), and *Cylizoma* Neck. (1790) are older.

**DERRIS HEPTAPHYLLA** (Linn.) comb. nov.

- Sophora heptaphylla* Linn. Sp. Pl. (1753) 373, excl. syn. Plukenet.  
*Pongamia sinuata* Wall. Cat. (1832) no. 5911, *nomen nudum*.  
*Derris sinuata* Benth. ex Thw. Enum. Pl. Zeyl. (1859-64) 93.  
*Pterocarpus diadelphus* Blanco Fl. Filip. (1837) 563.  
*Derris diadelpa* Merr. in Philip. Journ. Sci. 5 (1910) Bot. 103.  
*Funis convolutus* Rumph. Herb. Amb. 5: 69, t. 37, f. 1.

This species is not represented in our Amboina collections, but unquestionably *Funis convolutus* Rumph. is identical with the widely distributed Indo-Malayan form commonly known as *Derris sinuata* Benth. Hasskarl, Neue Schlüssel (1866) 96, after Miquel, has suggested that it may be the same as *Derris montana* Benth., which is hardly possible in view of the characters and geographic distribution of that species. The type of *Sophora heptaphylla* Linn. is Fl. Zeyl. 104, and Hermann's specimen on which Fl. Zeyl. 104 was based is *Derris sinuata* Benth. The reference to Plukenet, included by Linnaeus in the original description as a doubtful synonym, cannot possibly be interpreted as the type.

**DERRIS ELLIPTICA** (Roxb.) Benth. in Journ. Linn. Soc. Bot. 4 (1860) Suppl. 111.

- Galedupa elliptica* Roxb. Hort. Beng. (1814) 53, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 242.  
*Tuba radicum alba* Rumph. Herb. Amb. 5: 37, t. 23.

This is not represented in our Amboina collections. The figure is unmistakably that of a species of *Derris*, either identical with, or very closely allied to, *Derris elliptica* Benth. The indicated use of the plant, for poisoning fish, is also a *Derris* character, several of the Malayan species being thus used, including *Derris elliptica* Benth. Hasskarl, Neue Schlüssel (1866) 92, considers the Rumphian figure and description to be referable to *Millettia sericea* W. & A., but this reduction is certainly incorrect.

Perhaps referable to the same species of *Derris* as the above is *Tuba radicum nigra* Rumph. Herb. Amb. 5: 38. It is used for the same purposes as *Tuba radicum alba*, and is at least a species of *Derris*. Hasskarl, Neue Schlüssel (1866) 92, merely indicated that it belongs in the *Dalbergiae*.

**INOCARPUS** Forster**INOCARPUS EDULIS** Forst. Char. Gen. (1776) 66, t. 33.

- Bocoa edulis* Baill. Adansonia 9 (1868-70) 237.  
*Gajanus edulis* O. Kuntze Rev. Gen. Pl. 1 (1891) 189.  
*Gajanus* Rumph. Herb. Amb. 1: 170 t. 65.

AMBOINA, Hitoe lama, Robinson Pl. Rumph. Amb. 540, November, 1913,  
 144971—18

in light forests, altitude 50 meters; Amboina town, *Robinson Pl. Rumph. Amb. 541*, October 25, 1913, from cultivated trees, locally known as *guyang* and *daun gayang*.

This reduction of *Gajanus* seems first to have been suggested by Lamarck, *Encycl. 3* (1789) 253, which has been accepted by all succeeding authors and is the correct disposition of it.

#### ABRUS Linnaeus

**ABRUS PRECATORIUS** Linn. Syst. ed. 12 (1767) 472.

*Glycine abrus* Linn. Sp. Pl. (1753) 753.

*Abrus frutex* Rumph. Herb. Amb. 5: 57, t. 32.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb. 527*, September, 1913, locally known as *saga*, *saga alus*, and *daun saga*.

This species is too well known to need discussion. The original reduction of *Abrus frutex* to *Glycine abrus* Linn.=*Abrus precatorius* Linn. was made by Linnaeus, in *Stickman Herb. Amb. (1754) 19*, *Amoen. Acad. 4* (1759) 128, *Syst. ed. 10* (1759) 1173, *Sp. Pl. ed. 2* (1763) 1025.

#### CLITORIA Linnaeus

**CLITORIA TERNATEA** Linn. Sp. Pl. (1753) 753.

*Flos coeruleus* Rumph. Herb. Amb. 5: 56, t. 31.

AMBOINA, Gelala, *Robinson Pl. Rumph. Amb. 543*, August 25, 1913, along roadsides at low altitudes, locally known as *bunga sayor* and *sayor katjang*.

This species is too well known to need discussion. *Flos coeruleus* was first reduced to *Clitoria ternatea* by Linnaeus, in *Stickman Herb. Amb. (1754) 19*, and has been consistently cited here by all succeeding authors.

#### GLYCINE Linnaeus

**GLYCINE MAX** (Linn.) comb nov.

*Phaseolus max* Linn. Sp. Pl. (1753) 725.

*Dolichos soja* Linn. Sp. Pl. (1753) 727.

*Soja hispida* Moench. Meth. (1794) 153.

*Glycine hispida* Maxim. in Bull. Acad. Pétersb. 18 (1873) 398.

*Glycine soja* S. & Z. in Abh. Akad. Muench. 4<sup>2</sup> (1843) 119.

*Glycine ussuriensis* Regel & Maack Tent. Fl. Ussur. (1861) 50.

*Soja max* Piper in Journ. Am. Soc. Agron. 6 (1914) 84.

*Cadelium* Rumph. Herb. Amb. 5: 388, t. 140.

This species is not represented in our Amboina collections, but the Rumphian figure is an excellent representation of the widely cultivated and well-known soy bean. It was originally reduced

by Linnaeus to *Phaseolus max*, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162, Sp. Pl. ed. 2 (1763) 1018, in which he was followed by Burman f., Willdenow, Persoon, Poiret, Don, and other authors. Loureiro, Fl. Cochinch. (1790) 441, correctly referred it to *Dolichos soja* Linn., which is a synonym of *Phaseolus max* Linn.=*Glycine max* (Linn.) Merr. By Henschel and by Pritzel it has been also correctly referred to *Soja hispida* Moench., another synonym of *Glycine max* Merr. Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 197, erroneously referred it to *Phaseolus radiatus* Linn.

*Phaseolus max* Linn. has been considered a true *Phaseolus* and a synonym of *P. radiatus* Linn. by nearly all recent authors. It is clearly the soy bean, identical with *Glycine hispida* Maxim., and the specific name *max* should be maintained for the soy bean, whether *Glycine* or *Soja* be recognized as its generic name. Piper has declared in favor of the genus *Soja*, chiefly for the reason that of the eight species originally described by Linnaeus in *Glycine*, but a single one, *G. javanica* Linn., now remains in the genus, the other seven having been removed by subsequent authors to *Apios*, *Kraunhia*, *Abrus*, *Rhynchosia*, *Amphicarpaea*, and *Fagelia*, respectively. However, I am content to determine the type of the genus *Glycine* by elimination, which well maintain *Glycine* in its generally accepted sense with *G. javanica* Linn. as its type.

Prof. C. V. Piper has cleared up the synonymy of this commonly cultivated species; and with the aid of extensive data, supplied by Sir David Prain, he has clearly shown that *Phaseolus max* Linn. is identical with the commonly cultivated and well-known soy bean.\*

#### ERYTHRINA Linnaeus

**ERYTHRINA FUSCA** Lour. Fl. Cochinch. (1790) 427.

*Erythrina ovalifolia* Roxb. Hort. Beng. (1814) 53, Fl. Ind. ed. 2, 3 (1832) 254.

*Gelala aquatica* Rumph. Herb. Amb. 2: 235, t. 78.

This characteristic species is not represented in our Amboina collections. The reduction of *Gelala aquatica* was made by Loureiro, Fl. Cochinch. (1790) 427, in the original description of the species. *Erythrina ovalifolia* Roxb., the name commonly employed in current botanical literature, is certainly a synonym.

\* For a very full discussion of the case see Piper, C. V. The name of the soy bean; a chapter in its botanical history. *Journ. Am. Soc. Agron.* 6 (1914) 75-84.

**ERYTHRINA VARIEGATA** Linn. in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 122 (type!).

*Erythrina picta* Linn. Sp. Pl. ed. 2 (1763) 993.

*Gelala alba* Rumph. Herb. Amb. 2: 234, t. 77.

This species is not represented in our Amboina collections. The form so excellently figured by Rumphius occurs in the Philippines, in Palawan and in Mindanao, and on Corregidor Island in cultivation and is in all respects, except in its variegated leaves, the same as the common and widely distributed plant commonly known as *Erythrina indica* Lam. The Rumphian figure and description are the whole basis of *Erythrina variegata* Linn. and in part the basis of *E. picta* Linn. Strictly, the specific name *variegata* should be adopted to include not only the form with the variegated leaves, but also the much commoner and widely distributed form with uniformly green leaves, *E. indica* Lam. The differences between the two are no greater, for the purpose of distinguishing species or varieties, than between the various color forms of *Graptophyllum pictum* (Linn.) Griff. or of *Codiaeum variegatum* (Lour.) Blume.

Var. **ORIENTALIS** (Linn.) comb. nov.

*Erythrina corallodendron* Linn. var. *orientalis* Linn. Sp. Pl. (1753) 706.

*Tetradapa javanorum* Osbeck Dagbok Ostind. Resa (1757) 93.

*Erythrina indica* Lam. Encycl. 2 (1785) 391.

*Erythrina orientalis* Murr. Comm. Gotting. 8 (1787) 35, t. 1.

*Erythrina lithosperma* Blume Cat. Gew. Buitenz. (1823) 92.

*Gelala litorea* Rumph. Herb. Amb. 2: 230, t. 76.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb. 533*, August 8, 1913, along the seashore, locally known as *daun gelala*.

*Gelala litorea* Rumph. was originally reduced by Linnaeus to *Erythrina corallodendron* Linn., in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 122, Syst. ed. 10 (1759) 1155; and in the second edition of the Species Plantarum, (1763) 993, it was definitely reduced to the var. *orientalis* Linn. *Erythrina corallodendron* Linn. is a mixture of an American species and what is now generally known as *Erythrina indica* Lam., here called *Erythrina variegata* Linn. var. *orientalis* (Linn.) Merr. *Erythrina corallodendron* Linn. is apparently typified by the American plant. *Tetradapa javanorum* Osbeck, which does not appear in Index Kewensis, is manifestly the same as *Erythrina indica* Lam., the type being from western Java. It is suspected that the forms from Java and China, briefly mentioned by Rumphius, are referable here, but the data given are too indefinite for their certain determination.



## MUCUNA \* Adanson

MUCUNA GIGANTEA (Willd.) DC. Prodr. 2 (1825) 405.

*Dolichos giganteus* Willd. Sp. Pl. 3 (1800) 1041.

*Carpopogon giganteum* Roxb. Hort. Beng. (1814) 54.

*Zoophthalmum giganteum* Prain in Journ. As. Soc. Beng. 66<sup>2</sup> (1897) 68.

*Lobus litoralis* Rumph. Herb. Amb. 5: 10, t. 6.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb.* 567, November 26, 1913, along the seashore, locally known as *bharu laut*.

This was erroneously reduced by Loureiro, Fl. Cochinch. (1790) 456, to *Citta nigricans* Lour.=*Mucuna nigricans* (Lour.) Steud. Loureiro's species was described from Cochinchina material, and is entirely different from the plant that Rumphius described and figured, belonging in the section *Citta*, the pods with prominent oblique plaits across their faces. Most authors who have had occasion to cite the Rumphian figure have followed Loureiro's erroneous reduction. The forms indicated by Rumphius, l. c., as *nigra* and *maculata* are probably merely variants of this widely distributed species.

MUCUNA PRURIENS (Linn.) DC. Prodr. 2 (1825) 405.

*Dolichos pruriens* Linn. in Stickman Herb. Amb. (1754) 23, Amoen.

Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162 (type!).

*Stizolobium pruriens* Medic. in Vorles. Churpf. Phys. Ges. 2 (1797) 399.

*Carpopogon pruriens* Roxb. Hort. Beng. (1814) 54.

*Negretia pruriens* Blanco Fl. Filip. ed. 2 (1845) 411.

*Cacara pruritius* Rumph. Herb. Amb. 5: 393, t. 142.

This species is not represented in our Amboina collections, but I have before me a single pod of the species originating in Amboina, received from the botanic garden, Buitenzorg, Java, through Prof. C. V. Piper, of the United States Department of Agriculture; it is apparently identical with the widely distributed, low-altitude, Philippine form, but is not the same as much of the material in various herbaria labelled *Mucuna pruriens* DC. The Rumphian figure and description are the whole basis of *Dolichos pruriens* Linn., and the species must accordingly be interpreted from it. In the second edition of his Species Plantarum (1763) 1019, Linnaeus added certain references, to Jacquin, to Sloane, and perhaps the one to Rheede, that represent a species quite different from the Philippine and Moluccan *Mucuna pruriens* (Linn.) DC., and from these references the species has, by most authors, been erroneously interpreted.

\* Retained name, Vienna Code; *Zoophthamnum* P. Br. and *Stizolobium* P. Br. (1756) are older.

**MUCUNA MINIATA** sp. nov. § *Citta* (?).

*Parrana miniata* Rumph. Herb. Amb. 5: 10.

AMBOINA, Paso and Roemah tiga, *Robinson Pl. Rumph. Amb. 566* (type), in thickets and forests at low altitudes, locally known as *tali* or *tali-tali*.

Frutex scandens usque ad 15 m altus, inflorescentiis exceptis glaber; foliis firme chartaceis, in siccitate nigricantibus, nitidis, oblongis ad oblongo-ovatis, usque ad 14 cm longis, prominente subcaudato-acuminatis, lateralibus obliquis, basi rotundatis vel obscurissime subcordatis, nervis utrinque circiter 4; inflorescentiis circiter 20 cm longis, minute adpresse cinereo-pubescentibus atque pilis paucis urentibus instructis, fasciculatis, caulifloris; floribus miniatis, 6 ad 7 cm longis, calycis dentibus prominentibus, inferioribus angustis, 5 ad 7 mm longis.

A scandent shrub attaining a height of 15 m, glabrous except the inflorescence, deciduous. Branches slender, smooth, terete. Petioles 6 to 8 cm long. Leaflets firmly chartaceous, blackish when dry, shining, 10 to 14 cm long, 5 to 6 cm wide, oblong-ovate to oblong, the terminal one equilateral, lateral ones more or less oblique, apex rather prominently subcaudate-acuminate, acumen 1 to 1.5 cm long, blunt, base rounded or shallowly and obscurely cordate; lateral nerves about 4 on each side of the midrib, prominent, curved-ascending, obscurely anastomosing, the rachis extended about 2.5 cm beyond the insertion of the lateral leaflets, the petiolules black, 4 to 5 mm long. Plant leafless at time of flowering, the racemes up to 20 cm in length, fascicled on nodules along the trunk or larger branches, appressed cinereous-pubescent with short hairs, with a few, longer, yellowish-brown, stiff, stinging hairs intermixed, the indumentum more prominent on the calyx and pedicels than on the rachis. Flowers vermilion. 6 to 7 cm long, somewhat curved, their pedicels mostly in pairs, slender, about 2 cm long, spreading. Calyx cup-shaped, the tube about 8 mm long, the teeth rather prominent, the upper one stouter than the others, 3 to 4 mm long, the two lateral ones slenderly acuminate, about 3 mm long, the lower one linear, 5 to 7 mm in length. Standard 3.5 cm long, about 2 cm wide, blunt; wings rather strongly falcate, acuminate, up to 6 cm long, about 12 mm wide. Keel slightly longer than the wings, somewhat rostrate, outer margins ciliate in the lower part. Ovary and style hirsute. Fruit unknown.

This species is well characterized by its glabrous leaves, rather large, crimson flowers, and prominent, slender calyx teeth. It belongs with a group of species found in New Guinea, including *Mucuna novo-guineënsis* Scheff., *M. bennettii* F. Muell., and *M. kraetkei* Warb. Scheffer's species has bright orange flowers.

but the other two have red flowers. Warburg's species is distinguished by having short calyx teeth. Mueller's species differs from the Amboina form in its distinctly larger flowers and very much longer calyx teeth. I am under obligations to Prof. A. J. Ewart, curator of the national herbarium at Melbourne, for a flower of *d'Albertis's* specimen, the type of *Mucuna bennettii* F. Muell., for purposes of comparison, as well as for a copy of Mueller's original description of the species.

**MUCUNA ATERRIMA** (Piper & Tracy) comb. nov.

*Stizolobium aterrimum* Piper & Tracy in U. S. Dept. Agr. Bur. Pl. Ind. Bull. 179 (1910) 18, t. 4, f. B, t. 7.

*Cacara nigra* Rumph. Herb. Amb. 5: 381, t. 138.

*Cacara pilosa* Rumph. Herb. Amb. 5: 392.

This species is not represented in our Amboina collections. However, *Cacara nigra* is manifestly a *Mucuna* and is certainly synonymous with the form recently described by Piper and Tracy as *Stizolobium aterrimum*, as indicated by the Rumphian description, rather poor figure, and especially the data as to the pods "ad ventrum tribus protuberantibus costis notati," and the seeds "primo rubentia, dein fusca, ac tandem nigerrima, glabra & splendentia." *Stizolobium aterrimum* was described from cultivated specimens originating in Brazil, Australia, Cochin-China, Barbadoes, Mauritius, Java, and Ceylon. Linnaeus erroneously reduced *Cacara nigra* to *Phaseolus unguiculatus* Linn., in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162, and to *Dolichos unguiculatus* Linn., in Sp. Pl. ed. 2 (1763) 1019, with which species it has nothing in common. He was followed by Burman f., Lamarck, Loureiro, Willdenow, Persoon, Henschel, Pritzel, and Miquel. By other authors, Wight and Arnott, Prodr. (1834) 255, it was reduced, with doubt, to *Mucuna capitata* DC., which it certainly is not; while Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1855) 228, thought that it might be referable to *Dolichos dasycarpus* Miq.=*Dysolobium dolichoides* (Roxb.) Prain. Piper and Tracy,\* discuss *Cacara nigra* under *Stizolobium capitatum* (Roxb.) O. Kuntze=*Mucuna capitata* DC., but on account of the unsatisfactory figure given by Rumphius failed to recognize it as their *Stizolobium aterrimum*, while excluding it as a synonym of *S. capitatum* O. Ktze. In spite of the poor figure the description of the fruit and flower characters applies very closely in all particulars to *Mucuna aterrima* (Piper & Tracy) Merr.

\* The Florida velvet bean and related plants. U. S. Dept. Agr. Bur. Pl. Ind. Bull. 179 (1910) 13.

From the rather full data given by Rumphius I am unable to distinguish from this species the form described by Rumphius as *Cacara pilosa*. He contrasts it with *Cacara nigra*, but apparently considered it distinct from the latter chiefly because it was a wild, not a cultivated plant. Henschel, Vita Rumph. (1833) 181, erroneously cites the name *Cacara pilosa* as a synonym of *Phaseolus pilosus* Klein and erroneously cites *t. 142* (= *Mucuna pruriens* DC.) as representing *Cacara pilosa*. As noted by Hasskarl, Neue Schlüssel (1866) 136, it is close to *Mucuna utilis* Wall., but that species has the pods covered with a tawny pubescence. It differs from *Mucuna velutina* Hassk. in its purple, not white flowers. The chief objection to the identification of *Cacara pilosa* Rumph. with *Cacara nigra* Rumph. = *Mucuna aterrima* (Piper & Tracy) Merr. is that Rumphius describes the former as having more pubescent leaves than the latter.

**DIOCLEA** Humbolt, Bonpland, and Kunth

**DIOCLEA REFLEXA** Hook. f. Niger Flora (1849) 306.

*Parrana rubra* Rumph. Herb. Amb. 5: 9, *t. 5*.

AMBOINA, Toelehoe, Paso, and Amboina, in thickets at low altitudes and along the beach, *Robinson Pl. Rumph. Amb. 397*, November, 1913.

*Parrana rubra* Rumph., one of the "sea beans," is fairly well described but very poorly figured by Rumphius. It has remained doubtful up to the present time, but I feel confident that it is the widely distributed *Dioclea reflexa* Hook. f. in spite of the poor figure. Miquel thought that the figure represented a species of *Mucuna*, and Teysmann thought it was a species of *Derris*. The description of the seeds applies closely to those of *Dioclea reflexa*, but the figure does not show their peculiar hilum character.

**CANAVALIA** \* de Candolle

**CANAVALIA MICROCARPA** (DC.) comb. nov.

*Lablab microcarpus* DC. Prodr. 2 (1825) 402 (type!).

*Canavalia turgida* Grah. in Wall. Cat. (1832) no. 5534.

*Cacara litorea* Rumph. Herb. Amb. 5: 390, *t. 141, f. 1*.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 562*, October 29, 1913, in fruit, climbing in thickets back of the beach; town of Amboina, *Robinson Pl. Rumph. Amb. 561*, October 26, 1913, in flower, in thickets along streams, locally known as *katjang hor*.

Linnaeus, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, reduced *Cacara litorea*, with doubt, to *Dolichos*

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\* Retained name, Brussels Congress; *Canavali* Adans. (1763) and *Clementea* Cav. (1804) are older.

*lablab* Linn., with which species it has nothing in common. *Lablab microcarpus* DC. apparently supplies the oldest valid specific name for the species, which is here accepted, although unfortunately not an appropriate specific name, as the fruits are by no means "small" in this species.

The synonymy of the species is rather complicated, and has been discussed by Prain,\* who concludes that the name *Canavalia obtusifolia* DC. is properly applicable to this form with the wide pods and prominent keels or ridges. *Canavalia obtusifolia* DC. was based on *Dolichos obtusifolius* Lam., an American plant. *Dolichos rotundifolius* Vahl was also described from American specimens, and I believe that this name, as well as *Canavalia obtusifolia* (Lam.) DC., is a synonym of *Canavalia lineata* (Thunb.) DC. *Katu-tjandi* Rheede, Hort. Malabar. 8: 83, t. 43, included pods of both *Canavalia lineata* DC. and *C. turgida* Grah.=*Canavalia microcarpa* (DC.) Merr. Hasskarl, Neue Schlüssel (1866) 136, leaves *Cacara litorea* as a synonym of *Lablab vulgaris* Savi, which is an entirely wrong disposition of it. The Rumphian figure is very greatly reduced, whence de Candolle's inappropriate specific name.

**CANAVALIA LINEATA** (Thunb.) DC. Prodr. 2 (1825) 404.

*Dolichos lineatus* Thunb. Fl. Jap. (1784) 280.

*Dolichos obtusifolius* Lam. Encycl. 2 (1786) 295.

*Dolichos rotundifolius* Vahl Symb. 2 (1791) 81.

*Canavalia obtusifolia* DC. Prodr. 2 (1825) 404.

*Cacara litorea* Rumph. Herb. Amb. 5: 390 quoad descr. p. p., non t. 141, t. 1. [See *Canavalia microcarpa* (DC.) Merr.].

AMBOINA, Hatiwe, Robinson Pl. Rumph. Amb. 553, September 4, 1913, along the strand.

This strand form, apparently always growing on the loose sand of the beach, is not to be confused with *Canavalia microcarpa* (DC.) Merr. (*C. turgida* Grah.), which grows in thickets back of the beach. It is apparently included in the description of *Cacara litorea* Rumph., but is not the form figured by him; see *Canavalia microcarpa* (DC.) Merr., page 280.

**CANAVALIA GLADIATA** (Jacq.) DC. Prodr. 2 (1825) 404.

*Dolichos gladiatus* Jacq. Coll. 2 (1788) 276.

*Canavalia gladiata* DC. var. *machaeroides* DC. Prodr. 2 (1825) 404 (type!).

*Canavalia machaeroides* DC. ex Steud. Nomencl. ed. 2, 1 (1840) 273 (type!).

*Lobus machaeroides* Rumph. Herb. Amb. 5: 376, t. 135, f. 1.

This cultivated bean is not represented in our Amboina col-

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\* Journ. As. Soc. Beng. 66<sup>2</sup> (1897) 419.

lections. The figure and description manifestly apply to the form generally known as *Canavalia gladiata* DC., which is found in scattered cultivation in most tropical countries. Linnaeus originally, but erroneously, reduced *Lobus machaeroides* to *Dolichos ensiformis* Linn.=*Canavalia ensiformis* DC., in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162, Sp. Pl. ed. 2 (1763) 1022, in which he was followed by Burman f., Lamarck, and Loureiro. Willdenow, Sp. Pl. 3 (1800) 1039, referred it to *Dolichos gladiatus*, which as *Canavalia gladiata* (Jacq.) DC. is the correct disposition of it. *Canavalia machaeroides* DC. (*C. gladiata* DC. var. *machaeroides* DC.) is based wholly on Rumphius and thus becomes a synonym of *Canavalia gladiata* (Jacq.) DC., although placed in Index Kewensis as a synonym of *Canavalia cathartica* Thouars.

#### PUERARIA de Candolle

**PUERARIA PHASEOLOIDES** (Roxb.) Benth. in Journ. Linn. Soc. Bot. 9 (1867) 125.

*Dolichos phaseoloides* Roxb. Fl. Ind. ed. 2, 3 (1832) 316.

*Phaseolus minimus silvestris* Rumph. Herb. Amb. 5: 387?

AMBOINA, Soja road, Batoe gadjah, and Amboina (town), *Robinson Pl. Rumph. Amb.* 607, July and August, 1913, in thickets and waste places, sea level to an altitude of 200 meters, locally known as *katjang panjang*.

The species briefly described by Rumphius is referred here with some doubt, although the description applies closely to *Pueraria phaseoloides* Benth. Hasskarl, Neue Schlüssel (1866) 136, thought that it might be *Glycine mollis* W. & A. *Phaseolus minimus* Rumph., described in the same chapter and figured, is *Phaseolus aureus* Roxb.

#### CAJANUS \* de Candolle

**CAJANUS CAJAN** (Linn.) Millsp. in Field. Columb. Mus. Bot. 2 (1900) 53.

*Cytisus cajan* Linn. Sp. Pl. (1753) 739.

*Cytisus pseudo-cajan* Jacq. Hort. Vind. 2 (1772) 54, t. 119.

*Cajan inodorum* Medic. in Vorles. Churpf. Phys. Ges. 2 (1787) 363.

*Cajanus bicolor* DC. Cat. Hort. Monsp. (1813) 85.

*Cajanus indicus* Spreng. Syst. 3 (1826) 248.

*Phaseolus balicus* Rumph. Herb. Amb. 5: 377, t. 135, f. 2.

AMBOINA, Koesoe koesoe sereh, *Robinson Pl. Rumph. Amb.* 551, August 23, 1913, locally known as *kajan kay*.

*Phaseolus balicus* was originally reduced by Linnaeus to his *Cytisus cajan*, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, to which it certainly belongs. The oldest valid

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\* Retained name, Brussels Congress; *Cajan* Adans. (1763) is older.

specific name is that supplied by the Linnean binomial, which is here accepted in place of the almost universally used *Cajanus indicus* Spreng.

PHASEOLUS Linnaeus

PHASEOLUS VULGARIS Linn. Sp. Pl. (1753) 723.

*Phaseolus scriptus* Rumph. Herb. Amb. 5: 382?

*Faba rubra* Rumph. Herb. Amb. 5: 382?

Both of the above plants, very briefly described by Rumphius, were exotics, which had been introduced into Amboina and cultivated. Both of them may possibly be forms of *Phaseolus vulgaris* Linn., but this disposition of them is a mere guess.

PHASEOLUS AUREUS Roxb. Hort. Beng. (1814) 55, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 297.

*Phaseolus mungo* auctt., non Linn.

*Phaseolus radiatus* auctt., non Linn.

*Phaseolus minimus* Rumph. Herb. Amb. 5: 386, t. 139, f. 2.

The commonly cultivated and well-known mung bean is not represented in our Amboina collections. Linnaeus originally reduced *Phaseolus minimus* Rumph. to *P. radiatus* Linn., in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162, in which he has been followed by all authors who have had occasion to cite the Rumphian figure and description. However, *Phaseolus radiatus* Linn. is not the mung bean, but is the form described by Roxburgh as *Phaseolus sublobatus* Roxb. *Phaseolus max* Linn., also referred to the mung by some authors, is the soy bean, *Glycine max* (Linn.) Merr. (*Soja max* Piper, *Glycine hispida* Maxim.); see page 274. *Phaseolus mungo* Linn. is a species distinct from *P. aureus* Roxb. (*P. radiatus* auctt.), the urd, or black gram, of India.\*

PHASEOLUS CALCARATUS Roxb. Hort. Beng. (1814) 54, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 289.

*Phaseolus cylindraceus* Rumph. Herb. Amb. 5: 389?

AMBOINA, Kati-kati, Robinson Pl. Rumph. Amb. 233, October 6, 1913, in thickets, altitude about 90 meters.

I am not sure that the plant here cited represents either *Phaseolus cylindraceus* Rumph. or *P. calcaratus* Roxb. The specimen is identical with the widely distributed, wild Philippine form that I have referred to *Phaseolus calcaratus* Roxb.†, which

\* Piper, C. V. Five Oriental species of beans. U. S. Dept. Agr. Bull. 119 (1914) 1-32, t. 1-6, gives critical consideration of the mung bean and its allies.

† Philip. Journ. Sci. 5 (1910) Bot. 132.

differs from typical *P. calcaratus* in its more scandent habit and in its smaller seeds.

#### VIGNA Savi

**VIGNA SINENSIS** (Linn.) Endl. ex Hassk. Pl. Jav. Rar. (1848) 386.

*Dolichos sinensis* Linn. Cent. Pl. 2 (1756) 28, Amoen. Acad. 4 (1759) 132, 326 (type!).

*Dolichos sinensis* Rumph. Herb. Amb. 5 : 375, t. 134.

This cultivated species is not represented in our Amboina collections, but the identity of *Dolichos sinensis* is unmistakable from Rumphius's figure and description. It is the commonly cultivated bean in southern China and the Indo-Malayan region with very long pods, indicated by Rumphius as "ulnam circiter longae." It is known in the Philippines as *sitao*, a name of Chinese origin, corresponding to the Chinese name *tsjaitau* quoted by Rumphius. *Dolichos sinensis* Rumph. is the whole basis of *Dolichos sinensis* Linn. Linnaeus took his name and brief description from Rumphius. I have not seen the original edition of the Centuria Plantarum 2 (1756), but in the reprint, Amoen. Acad. 4 (1759) 326, and in the reprint of Stickman's Herbarium Amboinense, l. c. 132, the Rumphian reference is the whole basis of the species as proposed by Linnaeus. All early authors follow Linnaeus in quoting the Rumphian figure under *Dolichos sinensis* Linn., but some of the more recent ones, Hasskarl and Miquel, quote it under *Vigna sinensis* where it properly belongs. *Vigna sinensis* (Linn.) Endl., however, has not always been correctly interpreted by recent authors, but strictly must be limited to the form of the cow pea with the very long pods.

**VIGNA CYLINDRICA** (Linn.) comb. nov.

*Phaseolus cylindricus* Linn. Amoen. Acad. 4 (1759) 132 (type!).

*Dolichos catjang* Linn. Mant. 2 (1771) 269.

*Phaseolus unguiculatus* auctt., non *Dolichos unguiculatus* Linn.

*Phaseolus minor* Rumph. Herb. Amb. 5: 383, t. 139, f. 1.

This cultivated bean is not represented in our Amboina collections. The Rumphian figure and description of *Phaseolus minor* are the whole basis of *Phaseolus cylindricus* Linn. (1759), a name that has been overlooked by all subsequent authors, and which is not listed in Index Kewensis. It antedates *Dolichos catjang* Linn. and supplies the earliest valid specific name for the common cow pea. This form, with the short pods, by some authors has been considered either as identical with *Vigna sinensis* (Linn.) Endl. or as a variety of it. Modern



authors have generally considered it as a distinct species, some under the name *Vigna unguiculata* (Linn.) Walp. However, *Dolichos unguiculatus* Linn., the basis of *Vigna unguiculata* Walp., is *Phaseolus unguiculatus* (Linn.) Piper, in *Torreya* 12 (1912) 190 (*Phaseolus antillanus* Urban), and has nothing to do with *Vigna*, with which it has been confused. Linnaeus cites the Rumphian name and figure in the original publication of *Dolichos catjang* (1771), in which he was followed by Burman f., Murray, Lamarck, Loureiro, Willdenow, Persoon, de Candolle, Don, and other authors. Rumphius described two forms, I *albus* and II *ruber*, which Hasskarl, *Neue Schlüssel* (1866) 135, indicated as *Vigna catjang* var. *alba* Hassk. and *V. catjang* var. *ruber* Hassk., respectively. Both are probably merely cultural forms of the species.

**VIGNA MARINA** (Burm.) comb. nov.

*Phaseolus marinus* Burm. *Index Universalis Herb. Amb.* 7 (1755) [17] (type!).

*Dolichos luteus* Sw. *Prodr. Veg. Ind. Occ.* (1788) 105.

*Vigna lutea* A. Gray *Bot. Wilkes U. S. Explor. Exped.* (1854) 452.

*Phaseolus maritimus* Rumph. *Herb. Amb.* 5: 391, *t.* 141, *f.* 2.

AMBOINA, Hatiwe and Eri, *Robinson Pl. Rumph. Amb.* 536, September, 1913, along the strand, locally known as *katjang laut*.

The specific name above adopted for this well-known and widely distributed strand plant seems to be the oldest valid one for it. Burman's species is typified by the Rumphian figure and description, the figure being an excellent representation of the plant commonly called *Vigna lutea* A. Gray. It is one of the few species published by Burman in the *Index Universalis* issued with Volume VII (*Auctuarium*) of the *Herbarium Amboinense*.

**PACHYRRHIZUS** \* Richard

**PACHYRRHIZUS EROSUS** (Linn.) Urban *Symb. Antil.* 4 (1905) 311.

*Dolichos erosus* Linn. *Sp. Pl.* (1753) 726.

*Dolichos bulbosus* Linn *Sp. Pl. ed.* 2 (1763) 1021.

*Pachyrrhizus angulatus* Rich. ex DC. *Prodr.* 2 (1825) 402.

*Pachyrrhizus bulbosus* Kurz in *Journ. As. Soc. Beng.* 45<sup>2</sup> (1876) 246.

*Cacara erosa* O. Kuntze *Rev. Gen. Pl.* 1 (1891) 165.

*Cacara bulbosa* Rumph. *Herb. Amb.* 5: 373, *t.* 132, *f.* 2.

The common yam bean is not represented in our Amboina collections. It was introduced into Amboina from the Philippines, having been brought to the latter group from Mexico by the Spanish colonists. *Cacara bulbosa* was originally reduced by

\* Retained name, Vienna Code; *Cacara* Thou. (1805) is older.

Linnaeus to *Dolichos erosus* Linn., in Stickman Herb. Amb. (1754) 23, Amoen, Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1163; but in the second edition of his Species Plantarum, ed. 2 (1763) 1021, he placed it under *Dolichos bulbosus* Linn., which is manifestly a synonym of the earlier *D. erosus* Linn. By most recent authors it has been considered to be *Pachyrrhizus angulatus* Rich., but this name must be abandoned for the much earlier Linnean one.

**PSOPHOCARPUS** \* Necker

**PSOPHOCARPUS TETRAGONOLOBUS** (Linn.) DC. Prodr. 2 (1825) 403.

*Dolichos tetragonolobus* Linn. in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162, Sp. Pl. ed. 2 (1763) 1020 (type!).

*Botor tetragonoloba* O. Kuntze Rev. Gen. Pl. 1 (1891) 162.

*Lobus quadrangularis* Rumph. Herb. Amb. 5: 374, t. 133.

This well-known species is not represented in our Amboina collections, but is doubtless still cultivated there as it is in most parts of the Indo-Malayan region. The Rumphian figure and description are the whole basis of *Dolichos tetragonolobus* Linn., and it has been consistently cited by all authors under that name or its modern equivalent, *Psophocarpus tetragonolobus* DC.

**DOLICHOS** Linnaeus

**DOLICHOS LABLAB** Linn. Sp. Pl. (1753) 725.

*Dolichos lignosus* Linn. l. c. 726.

*Dolichos albus* Lour. Fl. Cochinch. (1790) 439.

*Lablab vulgaris* Savi Diss. (1821) 19.

*Lablab perennans* DC. Prodr. 2 (1825) 402.

*Cacara* Rumph. Herb. Amb. 5: 378, t. 136.

*Cacara alba* Rumph. Herb. Amb. 5: 380, t. 137.

AMBOINA, Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 552, August 23, 1913, locally known as *kakara puti*.

The specimen represents one of the several distinct forms of this variable species; in the shape of its pod it is somewhat different from both of the forms figured by Rumphius. Two distinct forms are figured and described by Rumphius: *Cacara*, with purple flowers, and *Cacara alba*, with white flowers. These are now, however, generally considered to represent a single species. *Cacara* was originally reduced by Linnaeus to *Dolichos lignosus* Linn., in Stickman Herb. Amb. (1754) 23, and has been cited by various authors under the names *Dolichos altissimus* Lour. and *Lablab vulgaris* Savi, both synonyms of *Dolichos*

\* Retained name, Vienna Code; *Botor* Adans. (1763) is older.

*lablab* Linn. *Cacara alba* was cited by Loureiro in the original description of *Dolichos albus* Lour., Fl. Cochinch. (1790) 439, and has been cited by various authors under *Lablab perennans* DC., *Lablab vulgaris* Savi, and *Lablab cultratus* DC., all synonyms of *Dolichos lablab* Linn.

Some authors, after Adanson, have maintained *Lablab* as a genus distinct from *Dolichos* Linnaeus, but I interpret *Dolichos lablab* Linn. as the type of the genus *Dolichos*, it being the first species cited in the Species Plantarum, while the generic description, as given in the Genera Plantarum ed. 5 (1754) 324, conforms to the characters of this species.

## LEGUMINOSÆ OF UNCERTAIN STATUS

*Crotalaria montana* VIII tsjeme tsjeme Rumph. Herb. Amb. 6: 146.

A shrub from Macassar, Celebes, insufficiently described, but manifestly a representative of the *Leguminosae*. Hasskarl, Neue Schlüssel (1866) 176, thought that it might be a species of *Sophora*, near *S. glabra* Hassk.

*Aeschynomene theophrasti* Rumph. Herb. Amb. 5: 124.

Burman f. referred this to *Aeschynomene aspera* Linn., but there is no warrant for this reduction. Rumphius merely discusses the plant as described by *Theophrastus*.

## OXALIDACEAE

## AVERRHOA Linnaeus

AVERRHOA BILIMBI Linn. Sp. Pl. (1753) 428.

*Blimbingum teres* Rumph. Herb. Amb. 1: 118, t. 36.

AMBOINA, Binting, Robinson Pl. Rumph. Amb. 219, August 13, 1913, locally known as *blimbing*.

This is one of the few Rumphian species that Linnaeus reduced in the first edition of his Species Plantarum, the Rumphian citation appearing in Sp. Pl. (1753) 428, and in all of Linnaeus's subsequent works in which the species is considered. The reduction is certainly correct, and Linnaeus has been followed by all subsequent authors.

AVERRHOA CARAMBOLA Linn. Sp. Pl. (1753) 428.

*Prunum stellatum* Rumph. Herb. Amb. 1: 115, t. 35.

AMBOINA, from cultivated plants near the town of Amboina, Robinson Pl. Rumph. Amb. 218, August 23, 1913, locally known as *blimbing manis*.

This Rumphian species, like the preceding one, was reduced by Linnaeus in the first edition of his Species Plantarum (1753) 428, appears in the subsequent writings of the same author in which *Averrhoa* is considered, and the reduction, certainly correct, has been accepted by all subsequent authors.

## BIOPHYTUM de Candolle

**BIOPHYTUM SENSITIVUM** (Linn.) DC. Prodr. 1 (1824) 690.

*Oxalis sensitiva* Linn. Sp. Pl. (1753) 434.

*Herba sentiens* Rumph. Herb. Amb. 5: 301, t. 104, f. 2.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb.* 217, July 20, 1913, along ditches in rocky soil, altitude 5 to 10 meters.

*Herba sentiens* Rumph. was reduced by Linnaeus to *Oxalis sensitiva*, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1038, Sp. Pl. ed. 2 (1762) 622, which is certainly correct. The plant is now known as *Biophytum sensitivum* (Linn.) DC., and most authors who have cited the Rumphian figure since 1824 have so placed it. Miquel, however, Fl. Ind. Bat. 1<sup>2</sup> (1858) 134, considers that the Rumphian figure represents *Oxalis reinwardtii* Zucc., which he maintains as a species distinct from *Biophytum sensitivum* (Linn.) DC.

## OXALIS Linnaeus

**OXALIS REPENS** Thunb. Diss. Oxal. (1781) 16.

*Oxys lutea indica* Rumph. Herb. Amb. 5: 277.

AMBOINA, on walls in the town of Amboina, *Robinson Pl. Rumph. Amb.* 216, July 22, 1913, locally known as *dawn kelauwar*.

Burman f., Fl. Ind. (1768) 107, and Loureiro, Fl. Cochinch. (1790) 285, place *Oxys lutea indica* under *Oxalis corniculata* Linn., and most authors have considered *Oxalis repens* Thunb. to be a synonym of the older Linnean species. However, Dr. B. L. Robinson \* has shown that two species are involved in what is generally called *Oxalis corniculata* Linn. The actual Amboina specimens, like most or all the material from the Malayan region usually called *Oxalis corniculata* Linn., are actually referable to Thunberg's species, as the two forms are distinguished by Doctor Robinson.

## RUTACEAE

## FAGARA Linnaeus

**FAGARA TORVA** (F. Muell.) Engl. in Engl. & Prantl Nat. Pflanzenfam. 3<sup>4</sup> (1895) 119.

*Zanthoxylum torvum* F. Muell. Fragm. 7 (1871) 140.

*Zanthoxylum glandulosum* T. & B. Cat. Hort. Bogor. (1866) 234.  
*nomen nudum*.

*Nugae sylvarum silvestris* Rumph. Herb. Amb. 5: 124.

AMBOINA, Paso, on trees at low altitudes, *Robinson Pl. Rumph. Amb.* 250. October 29, 1913.

\* Journ. Bot. 44 (1906) 391.

Hasskarl, Neue Schlüssel (1866) 99, has suggested that *Nugae sylvarum silvestris* might be a *Zanthoxylum*. With Amboina material that certainly represents the Rumphian species, this supposition can now be verified. The specimen is a very close match for Hochreutiner's *Pl. Bogor. Exsiccatae* No. 28, which is typical *Zanthoxylum glandulosum* T. & B., and which Hochreutiner interprets as typical *Zanthoxylum torvum* F. Muell. The same form is found in Luzon, Leyte, and Mindanao in the Philippines, so that the known range of the species is now from Luzon to Java, the Moluccas, and tropical Australia.

**FAGARA** sp.

*Panax* ? *anisum* DC. Prodr. 4 (1830) 254 (type!).

*Nothopanax* ? *anisum* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1857) 766 (type!).

*Anisum moluccanum* Rumph. Herb. Amb. 2: 131, t. 42.

This species is not represented in our Amboina collections. The description in all respects applies to *Fagara* (*Zanthoxylum*), but without specimens I am unable definitely to refer *Anisum moluccanum* Rumph. to any described Malayan species. So far as can be determined from the description, *Panax anisum* DC. is based wholly on Rumphius, *Nothopanax anisum* Miq. being merely a transfer of de Candolle's name. Henschel erroneously referred the Rumphian species to *Zanthoxylum aromaticum* Willd., an American species. The figure closely resembles *Fagara avicennae* Lam.

**EVODIA** Forster

**EVODIA LATIFOLIA** DC. Prodr. 1 (1824) 724 (type!).

*Ampacus latifolia* Rumph. Herb. Amb. 2: 186, t. 61.

This species was based wholly on Rumphius and must be interpreted entirely from the Rumphian figure and description. *Evodia latifolia* DC. has been interpreted by recent authors as being represented by Philippine specimens collected by Cuming, but the Philippine material has been described under two different names, *Evodia bintoco* Blanco and *Evodia philippinensis* Merr. Burman f. thought that the plant figured by Rumphius might be a species of *Rhus*, Lamarck a *Premna* or *Vitex*, and Poiret, with doubt, an *Aubertia*. De Candolle, however, based his *Evodia latifolia* wholly on Rumphius. It has also been called *Zanthoxylum latifolium* Don, *Fagara latifolia* Roxb., and *Zanthoxylum rumphianum* Cham. It is undoubtedly a true *Evodia*. Miquel, Ann. Mus. Bot. Lugd. Bat. 3 (1867) 244, has redescribed *Evodia latifolia* DC. from Halmaheira specimens, and his description conforms closely

to Philippine material referred to de Candolle's species. Amboina specimens are desirable in order definitely to determine the true status of the species.

**EVODIA AMBOINENSIS** sp. nov.

*Ampacus angustifolia* Rumph. Herb. Amb. 2: 188, t. 62.

AMBOINA, Koesoejoesoe sereh, *Robinson Pl. Rumph. Amb.* 251 (type), October 3, 1913, in light woods at an altitude of about 225 meters; hills behind the town of Amboina, in light forests, *Robinson Pl. Rumph. Amb.* 252, October 27, 1913, locally known as *gendarussa*.

Arbor parva, 8 ad 10 m alta, glabra, vel ramulis junioribus inflorescentiisque plus minusve cinereo-puberulis; foliis 3-foliolatis, foliolis petiolatis, firme chartaceis ad subcoriaceis, oblongis, usque ad 16 cm longis, acuminatis, basi acutis ad rotundatis, nervis utrinque 10 ad 12, subtus prominentibus; paniculis axillaribus, pyramidatis, usque ad 13 cm longis, ramis patulis, multifloris, floribus circiter 2.5 mm longis, ovario pubescente.

A tree 8 to 10 m high, nearly glabrous, or the young branchlets and parts of the inflorescence more or less cinereous-puberulent. Branches terete, reddish-brown, often somewhat compressed at the nodes, smooth. Leaves opposite, 3-foliolate, their petioles 4 to 7 cm long; leaflets in general oblong, firmly chartaceous to subcoriaceous, 9 to 16 cm long, 4 to 7 cm wide, entire, apex rather prominently acuminate, base acute to rounded, somewhat shining when dry, subolivaceous or somewhat pale, quite glabrous on both surfaces; lateral nerves 10 to 12 on each side of the midrib, slender but prominent, anastomosing, the reticulations lax; petiolules 3 to 5 mm long. Panicles axillary, pyramidal, slightly puberulent or nearly glabrous, up to 13 cm long, the branches spreading, the lower ones up to 7 cm long. Flowers white, numerous, their pedicels about 2 mm long. Sepals 4, ovate, obtuse, 0.5 mm long. Petals 4, elliptic-ovate, glabrous, slightly apiculate at the apex, 2 to 2.5 mm long; filaments elongated, glabrous; anthers 1.2 mm long. Ovary 4-lobed, pubescent. Fruit small, composed of two or three, nearly free, dehiscent cocci about 3.5 mm in length, the seeds blue-black, shining, about 2 mm in diameter.

*Ampacus angustifolius* has been confused with *Evodia triphylla* DC. by practically all authors since the publication of the latter species in de Candolle's *Prodromus* 1 (1824) 724, which in turn was based on *Fagara triphylla* Lam., *Encycl.* 2 (1788) 447. The type of *Fagara triphylla* was a Philippine specimen, and it is *Melicope triphylla* (Lam.) Merr., in *Philipp. Journ. Sci.* 7 (1912) Bot. 375, where the complicated synonymy

of the species is discussed. It is manifest, however, that most authors interpreted *Evodia triphylla* (Lam.) DC. not from the Philippine specimen actually described, but from the Rumphian figure, for Lamarck in the original description of *Fagara triphylla* adds a reference to *Ampacus angustifolia* Rumph. The names *Fagara triphylla* Lam., *Evodia triphylla* DC., and *Zanthoxylum triphyllum* Don all refer to *Melicope triphylla* (Lam.) Merr. as synonyms and cannot be applied to the Amboina plant. It was erroneously reduced by Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1859) 671, to *Zanthoxylum zeylanicum* DC.

*Evodia triphylla* (Lam.) DC. has been given a range of from Tenasserim to Japan southward through Malaya to New Guinea, and to it have been referred specimens representing at least four distinct species in two different genera. As already pointed out by me, true *Zanthoxylum triphyllum* Lam. = *Evodia triphylla* DC. is *Melicope triphylla* (Lam.) Merr., a species confined to the Philippines. Chinese material generally, but erroneously, referred to *Evodia triphylla* DC. is *Evodia pteleae-folia* (Champ.) Merr., in Philip. Journ. Sci. 7 (1912) Bot. 377; material from India, the Malay Peninsula, and the Sunda Islands for the most part is *Evodia lunur-ankenda* (Gaertn.) Merr., l. c. 378; while the actual *Ampacus angustifolius* Rumph. of Amboina represents still another species, *Evodia amboinensis* Merr. described above. This is known only from Amboina, but material from other parts of the Moluccas and from New Guinea, erroneously referred by other authors to *Evodia triphylla* DC., may prove to be identical with the Amboina species.

#### FLINDERSIA R. Brown

**FLINDERSIA AMBOINENSIS** Poir. in Lam. Encycl. Suppl. 4 (1816) 650 (type!).

*Flindersia radulifera* Spreng. Geschicht. Bot. 2 (1818) 76 (type!), ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 208.

*Arbor radulifera* Rumph. Herb. Amb. 3: 201, t. 129.

This species is not represented in our Amboina collections. *Arbor radulifera* Rumph. is the whole basis of *Flindersia amboinensis* Poir. and of *F. radulifera* Spreng. The latter name does not appear in Index Kewensis. All descriptions of the species published, up to and including that of A. de Candolle,\* have been based on the data given by Rumphius, no botanist having had specimens. It is cultivated in the botanic garden at Buitenzorg, Java, according to botanical specimens named

\* Meliaceae in DC. Monog. Phan. 1 (1878) 735.

*Flindersia amboinensis* Poir. from "III-A-7" and distributed from that institution.

MURRAYA \* Koenig

MURRAYA PANICULATA (Linn.) Jack in Malay Miscel. 1 (1820) 31.

*Chalcas paniculata* Linn. Mant. 1 (1767) 68.

*Chalcas camuneng* Burm. f., Fl. Ind. (1768) 104.

*Murrraya scandens* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 233 (Neue Schlüssel 91) (type!).

*Camunium japonense* Rumph. Herb. Amb. 5: 29, t. 18, f. 2.

*Camunium javanicum* Rumph. Herb. Amb. 5: 27.

*Camunium vulgare* Rumph. Herb. Amb. 5: 26, t. 17.

AMBOINA, Robinson Pl. Rumph. Amb. 249, September 13, 1913, from cultivated trees in the town of Amboina, locally known as *kamuneng*; exactly *Camunium japonense* Rumph.!

While the figures given by Rumphius represent two distinct forms, it is very doubtful whether or not two species are represented. Specimens are found in herbaria that apparently present all intergradations between the form with small leaflets (*Camunium japonense* Rumph.) and the form with fewer and larger leaflets (*Camunium vulgare* Rumph.). If but one species be represented, then the oldest valid name is *Murrraya paniculata* (Linn.) Jack, and pending a critical revision of the genus it is probably best to consider both forms described by Rumphius as representing one variable species.

Linnaeus, in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128, erroneously reduced *Camunium japonense* to *Vitex pinnata* Linn., the latter being given by some authors as a synonym of *Aglaia odorata* Lour. However, *Vitex pinnata* Linn. was based on Fl. Zeyl. 415, and Hermann's specimen is *Vitex altissima* Linn.† The reduction of *Camunium japonense* to *Murrraya exotica* Linn. was made by Lamarck, Encycl. 4 (1797) 382, in which he has been followed by numerous authors.

*Camunium vulgare* Rumph. was placed by Burman f., Fl. Ind. (1768) 104, as a synonym of *Chalcas camuneng*, but *Chalcas camuneng* Burm. f. was primarily based on Javan specimens from cultivated plants. Linnaeus based his *Chalcas paniculata* on Burman's species and also cited Rumphius. Whether the form actually in Burman's hands was the one with small leaflets (typical *Murrraya exotica* Linn.) or with fewer and larger leaflets is impossible to determine from the original description, but it was probably the former. *Murrraya sumatrana*

\* Retained name, Brussels Congress; *Camunium* Adans. (1763), *Chalcas* Linn. (1767), and *Bergera* Koenig (1771) are older.

† See Trimen, Fl. Ceyl. 3 (1895) 358.



Roxb. is apparently quite the same as *Camunium vulgare* Rumph.; while *Murraya scandens* Hassk., which does not appear in Index Kewensis, must be typified wholly by the Rumphian figure and description. The forms mentioned by Hasskarl, Neue Schlüssel (1866) 91, as *Camunium javanicum* and *Camunium e Macassar* are both probably referable to *Murraya paniculata* (Linn.) Jack as here interpreted.

#### FERONIA Correa

**FERONIA LIMONIA** (Linn.) Swingle in Journ. Wash. Acad. Sci. 4 (1914) 328.

*Schinus limonia* Linn. Sp. Pl. (1753) 389.

*Limonia acidissima* Linn. Sp. Pl. ed. 2 (1762) 554.

*Feronia elephantum* Correa in Trans. Linn. Soc. 5 (1800) 225.

*Anisifolium* Rumph. Herb. Amb. 2: 133, t. 43.

Nothing resembling *Anisifolium* appears in our Amboina collections. Regarding the Rumphian figure, Swingle states that it is "the wood apple or a very closely allied species." Linnaeus made the reduction to his *Schinus limonia*, in Stickman Herb. Amb. (1759) 9, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1034, and in his Species Plantarum, ed. 2 (1762) 554, to *Limonia acidissima*, the latter reduction being followed by most authors. Hamilton placed it under *Feronia elephantum* Corr., while Hasskarl places it under *Hesperethusa acidissima* Roem., a synonym of *Feronia limonia* (Linn.) Swingle. Rumphius's material was from Java where the species is still cultivated.

#### AEGLE \* Correa

**AEGLE MARMELOS** (Linn.) Correa in Trans. Linn. Soc. 5 (1800) 223.

*Crataeva marmelos* Linn. Sp. Pl. (1753) 444.

*Bilacus marmelos* O. Kuntze Rev. Gen. Pl. 1 (1891) 98.

*Bilacus* Rumph. Herb. Amb. 1: 197, t. 81.

*Bilacus taurinus* Rumph. Herb. Amb. 1: 199.

This reduction of *Bilacus* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120, Sp. Pl. ed. 2 (1762) 637, and is certainly the correct disposition of it. It was described and figured from cultivated specimens.

I am unable definitely to place *Bilacus amboinensis silvestris* Rumph., Herb. Amb. 1: 200, t. 28. It was erroneously reduced by Linnaeus, in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120, to *Crataeva tapia* Linn. Hamilton suggested that it might be an undescribed species of *Aegle*, but this is improbable. The figure strongly resembles *Crataeva religiosa* Forst.,

\* Retained name, Brussels Congress; *Belou* Adans. (1763) is older.

but the description does not conform to *Crataeva* in the seed characters: "In centro quatuor vel quinque locantur ossicula, a sese invicem remota, lanosa seu pilosa instar seminum Gossypii." In the original description Rumphius states that the flowers were unknown to him; but in the plate, drawn after he became blind, the flowers are shown. His original material was from Manipa, Sula Islands, and Celebes, but in the supplementary data taken from the Auctuarium and appended to the original description he cites specimens from Leytimor, Amboina, and states regarding the fruit: "Fructus est instar ovi minoris avis Casuarii." It is possible that the description was based on material from two different species. The figure, however, conforms to the characters of *Bilacus amboinensis silvestris* as given in the text. In some respects the figure and description suggest *Chaetospermum*, typified by the Philippine *Chaetospermum glutinosum* (Blanco) Swingle, but *Bilacus amboinensis silvestris* Rumph. can hardly belong in the *Rutaceae*.

#### FORTUNELLA Swingle

**FORTUNELLA JAPONICA** (Thunb.) Swingle in Journ. Wash. Acad. Sci. 5 (1915) 171, f. 3.

*Citrus japonica* Thunb. Nov. Act. Upsal. 3 (1780) 199.

*Citrus madurensis* Lour. Fl. Cochinch. (1790) 467.

*Citrus inermis* Roxb. Fl. Ind. ed. 2, 3 (1832) 393.

*Limonellus madurensis* Rumph. Herb. Amb. 2: 110, t. 31.

Loureiro, Fl. Cochinch. (1790) 467, first reduced *Limonellus madurensis* to his *Citrus madurensis*, which Swingle considers to be a synonym of *Citrus japonica* Thunb.=*Fortunella japonica* Swingle. The plant is a native of China, and the only possible objection I note to the reduction of *Limonellus madurensis* is that *Citrus japonica* is not known to occur in the Malay Archipelago. However, Rumphius states that the plant was cultivated in Madura and at Batavia, Java, where it may have been introduced from China and where it has failed to persist. Hasskarl. Neue Schlüssel (1866) 32, suggests *Atalantia monophylla* DC. as the proper reduction of *Limonellus madurensis* Rumph., but judging from the figure and description given by Rumphius the plant can hardly have been an *Atalantia*.

#### MEROPE M. Roemer

**MEROPE ANGULATA** (Willd.) Swingle in Journ. Wash. Acad. Sci. 5 (1915) 423.

*Citrus angulata* Willd. Sp. Pl. (1800) 1426 (type!).

*Sclerostylis spinosa* Blume Bijdr. (1825) 134.

*Limonia spinosa* Spreng. Syst. Veg. 4<sup>2</sup> (1827) 162.

*Glycosmis spinosa* Dietr. Syn. Pl. 2 (1840) 1409.

*Merope spinosa* M. Roem. Syn. Mon. Hesp. 1 (1846) 44.

*Limonia angulosa* W. & A. ex Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 521 (type!).

*Atalantia longispina* Kurz in Journ. As. Soc. Beng. 41<sup>2</sup> (1872) 295.

*Gonocitrus angulatus* Kurz l. c. 42<sup>2</sup> (1874) 228, t. 18.

*Paramignya longispina* Hook. f. Fl. Brit. Ind. 1 (1875) 511.

*Paramignya angulata* Kurz in Journ. As. Soc. Beng. 43<sup>3</sup> (1874) 135.

*Atalantia spinosa* Hook. f. ex Koord. Exkurs. Fl. Java 2 (1912) 427.

*Limonellus angulosus* Rumph. Herb. Amb. 2: 110, t. 32.

The above formidable list of synonyms is copied from Swingle's paper on *Merope*.<sup>\*</sup> He has there given a critical consideration of *Merope angulata* (Willd.) Swingle and its numerous synonyms. Rumphius's figure and description are the whole basis of *Citrus angulata* Willd. and hence typify the species, which on Wight and Arnott's suggestion was transferred to *Limonia* as *L. angulosus* W. & A. by Miquel; it is, therefore, also the type of *Limonia angulosa* W. & A. It is also the name-bringing synonym of both *Gonocitrus angulatus* Kurz and *Paramignya angulata* Kurz. Kurz was the first to recognize the identity of *Limonellus angulosus* Rumph. and its true relationships.

#### CITRUS Linnaeus

A number of representatives of the genus *Citrus* are figured and described by Rumphius, and these have been variously interpreted by botanists. Some maintain that the species of this genus are reducible to a few polymorphous types with numerous varieties, while others maintain that the genus is composed of a large number of closely allied species. The probabilities are that there are relatively few species and that these have yielded numerous horticultural forms and hybrids; it is not at all improbable that natural hybrids occur. In such a genus as *Citrus* it is naturally to be expected that authors have widely differed in interpreting the forms described by Rumphius. In relatively few cases is it possible definitely to determine from his figures and descriptions alone the exact status of the several forms in our present system of classification. The Robinson Amboina collection presents but two species of *Citrus*, the common lime and the common pomelo, and naturally helps but little in determining the status of the Rumphian species or forms. Until extensive field work is prosecuted in the whole Malayan region and until the entire genus *Citrus* undergoes a very thorough and critical revision, any attempt

<sup>\*</sup> *Merope angulata*, a salt-tolerant plant related to *Citrus*, from the Malay Archipelago. *Journ. Wash. Acad. Sci.* 5 (1915) 420-425.

to interpret the Rumphian figures and descriptions must be unsatisfactory. Linnaeus, in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 121, reduced most of the forms that Rumphius figured to *Citrus medica* Linn. and *Citrus aurantium* Linn., which disposition of them is not at all satisfactory; yet succeeding attempts to interpret them are hardly more satisfactory. It is probable that all or most of them have been described by succeeding authors, but from descriptions alone it is quite impossible to determine precisely to what forms or species the Rumphian plants should be reduced.

**CITRUS AURANTIFOLIA** (Christm.) Swingle in Journ. Wash. Acad. Sci. 3 (1913) 465.

*Limonia aurantifolia* Christm. Pflanzensyst. 1 (1777) 618.

*Limonia acidissima* Houtt. Handl. 2<sup>2</sup> (1774) 444, non Linn.

*Citrus lima* Lunan Hort. Jamaic. 2 (1814) 451.

*Citrus acida* Roxb. Fl. Ind. ed. 2, 3 (1832) 390.

*Citrus notissimus* Blanco Fl. Filip. (1837) 607.

*Citrus limonellus* Hassk. in Flora 25 (1842) Beibl. 43.

*Limonellus* Rumph. Herb. Amb. 2: 107, t. 29.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 247, August 13, 1913, along roadsides, locally known as *limon china*.

This is the common lime. *Limonellus* was erroneously reduced by Linnaeus, in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 121, to *Citrus aurantium* Linn. Both Houttuyn and Christmann cite the Rumphian figure, and Christmann's specific name is the oldest valid one for the species, as shown by Swingle. Blume cites the Rumphian plant as a synonym of *Citrus javanica* Blume, Bijdr. (1825) 140, while Hasskarl, Neue Schlüssel (1866) 32, places it under *Citrus limonellus* Hassk., the specific name being apparently taken from Rumphius. The form figured on the same plate by Rumphius, fig. A, Hasskarl, l. c., considers as a variety, calling it *Citrus limonellus* var. *oxycarpus* Hassk.

**CITRUS MAXIMA** (Burm.) comb. nov.

*Aurantium maximum* Burm. ex Rumph. Herb. Amb. Auctuarium (1755) Ind. Univ. [16] (type!).

*Citrus grandis* Osbeck Dagbok Ostind. Resa (1757) 98.

*Citrus aurantium* Linn. var. *grandis* Linn. Sp. Pl. (1753) 783.

*Citrus decumana* Linn. Syst. ed. 12 (1767) 508.

*Limo decumanus* Rumph. Herb. Amb. 2: 96, t. 24, f. 2.

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb.* 248, August 17, 1913, altitude about 60 meters, locally known as *limon*.

The common pomelo is commonly known as *Citrus decumana* Linn., but there are at least two older names, the older of which is here accepted. *Aurantium maximum* Burm., a name

not listed in Index Kewensis, is validly published by Burman in the general index to the Herbarium Amboinense by citation of the Rumphian name and description. It is to be noted that Burman on page [11] of the Index Universalis refers *Limo decumanus* Rumph. to *Citrus aurantium* Linn. Swingle, in Sargent Pl. Wils. 2 (1914), has already pointed out that *Citrus grandis* Osbeck antedates the publication of *Citrus decumana* Linn. and accordingly accepted Osbeck's specific name. Three forms described by Rumphius, II, III, and IV, are all probably referable here; although Hasskarl, Neue Schlüssel (1866) 31, places them under the varieties *pyriformis* Hassk., *leucosarca* Hassk., and *dulcis* Hassk., respectively.

**CITRUS OBVERSA** Hassk. Cat. Hort. Bogor. (1844) 218.

*Limo ferus* Rumph. Herb. Amb. 2: 106, t. 26, f. 3, t. 28.

In this reduction I merely follow Hasskarl, Neue Schlüssel (1866) 32. The figures strongly resemble forms of *Citrus hystrix* DC., as de Candolle's species is currently interpreted; and *Limo ferus* Rumph., with *Citrus obversus* Hassk., may be merely a form of this polymorphous species. At any rate, the specific status of *Citrus obversa* Hassk. is very doubtful.

**CITRUS BERGAMIA** Risso Hist. Nat. Or. Europ. Merid. (1826-28) t. 53.

*Limo taurinus* Rumph. Herb. Amb. 2: 105.

The status of both *Citrus bergamina* Risso, as a species, and of *Limo taurinus* Rumph. is very doubtful. The reduction follows Miquel and Hasskarl. I suspect that *Limo taurinus* is merely a form of *Citrus hystrix* DC.

**CITRUS MEDICA** Linn. Sp. Pl. (1753) 782.

*Malum citrium* Rumph. Herb. Amb. 2: 99, t. 25.

This was placed by Loureiro, Fl. Cochinch. (1790) 465, under *Citrus medica* Linn., and by Hasskarl, Neue Schlüssel (1866) 31, under *Citrus grandis* Hassk. var. *oblonga* Hassk.

**CITRUS HYSTRIX** DC. Cat. Hort. Monsp. (1813) 97.

*Limo tuberosus* Rumph. Herb. Amb. 2: 101, t. 26, f. 1.

*Limo unguentarius* Rumph. Herb. Amb. 2: 103.

*Limo agrestis* Rumph. Herb. Amb. 2: 104, t. 27.

The forms with the rugose fruits appear to be the same as the Philippine form described by Blanco as *Citrus torosa*. *Limo tuberosus* has been reduced to *Citrus medica* Linn. var., to *C. hystrix* DC. var., and to *Citrus bergamia* Risso var. *unguentaria* Roem. *Limo unguentarius* has been reduced to *Citrus medica* Linn. var., to *C. hystrix* DC. var., and to *C. bergamia*

Risso var. *unguentaria* Roem.; while *Limo agrestis* has been reduced to *Citrus medica* Linn. var., *C. hystrix* DC. var., *C. bergamia* Risso var. *ventricosa* Roem., *Papeda rumphii* Hassk., and *Citrus papeda* Miq.

**CITRUS AURANTIUM** Linn. Sp. Pl. (1753) 782, var.

*Aurantium acidum* Rumph. Herb. Amb. 2: 111, t. 33.

This figure seems to represent one of the sour oranges. It has been reduced by various authors to *Citrus fusca* Lour., *C. aurantium* Linn. var. *vulgaris* Risso, *C. vulgaris* Risso, *C. amara* Hassk., and *C. bigaradia* Risso.

To *Citrus aurantium* should probably also be referred *Aurantium verrucosum* Rumph., Herb. Amb. 2: 116, of Banda, and *Aurantium pumilum madurense* Rumph., l. c., of Madura, and probably also the forms indicated as *Aurantium acidum* II and III on page 112.

**CITRUS NOBILIS** Lour. Fl. Cochinch. (1790) 466.

*Aurantium sinense* Rumph. Herb. Amb. 2: 113.

*Aurantium sinense* II Rumph. Herb. Amb. 2: 113.

This is the common loose-skinned orange commonly referred to *Citrus nobilis* Lour. Hasskarl, Neue Schlüssel (1866) 33, refers *A. sinense* to *Citrus nobilis* var. *melanocarpa* Hassk. and *A. sinense* II to *C. nobilis* var. *microcarpa* Hassk.

**CITRUS** sp.

*Limo ventricosus* Rumph. Herb. Amb. 2: 102, t. 26, f. 2.

The figure represents a form somewhat approaching the true lemon. It has been reduced by various authors to *Citrus medica* Risso, *C. hystrix* DC., *C. aurantium* Linn. var. *limonum* Risso, *C. bergamia* Risso var. *ventricosa* Roem., and *C. limonum* Risso.

**CITRUS** sp.

*Limonellus aurarius* Rumph. Herb. Amb. 2: 109, t. 30.

This has been reduced by various authors to *Citrus aurantium* Linn., *C. limetta* Risso, *C. limetta* var. *auraria* Risso, and *C. hystrix* DC. Its true position is very uncertain, but it may be a form of *Citrus limetta* Risso.

**CITRUS** sp.

*Aurantium verrucosum* Rumph. Herb. Amb. 2: 115, t. 35.

This has been reduced by various authors to *Citrus nobilis* Lour., *C. aurantium* Linn., *C. pomellos* var. *racemosus* Risso, *C. decumana* var. *racemosa* Roem., and *C. decumana* var. *verrucosa* Miq.; while Hasskarl, Neue Schlüssel (1866) 33, sug-

gests that it may be *Citrus macracantha* Hassk. The figure might be either a form of *Citrus aurantium* Linn. or a small-fruited form of *Citrus maxima* (Burm.) Merr. (*C. decumana* Linn.).

## SIMARUBACEAE

BRUCEA J. S. Miller

BRUCEA AMARISSIMA (Lour.) Merr. in Philip. Journ. Sci. 10 (1915) Bot. 18.

*Gonus amarissimus* Lour. Fl. Cochinch. (1790) 658.

*Brucea sumatrana* Roxb. Hort. Beng. (1814) 12 (type!), Fl. Ind. ed. 2, 1 (1832) 449.

*Lussa radja* Rumph. Herb. Amb. 7: 27, t. 15.

This characteristic and widely distributed Malayan species is not represented in our Amboina collections. The Rumphian figure is the full basis of *Brucea sumatrana* Roxb. by citation in the original place of publication, Hort. Beng. (1814) 12. It is also cited by Loureiro in the original description of his *Gonus amarissimus*, Fl. Cochinch. (1790) 658. The form "II ex Solora" Rumph., l. c. 28, may be referable to the same species; it was characterized as differing from the Javan form in its longer inflorescences and in its larger and more intensely bitter fruits.

## AILANTHUS \* Desfontaines

AILANTHUS INTEGRIFOLIA Lam. Encycl. 3 (1791) 417 (type!).

*Ailanthus moluccana* DC. Prodr. 2 (1825) 89 (type!).

*Arbor coeli* Rumph. Herb. Amb. 3: 205, t. 132.

This species is not represented in our Amboina collections. *Arbor coeli* Rumph. is the whole basis of *Ailanthus* (*Aylanthus*) *integrifolia* Lam. as published in 1791, while *A. moluccana* DC., 1825, is merely a new name for Lamarck's species, so that both must primarily be interpreted from the Rumphian figure and description. Linnaeus, Mant. 2 (1771) 379, thought that it might possibly be referable to *Adenanthera falcataria* Linn., which is *Albizzia falcata* (Linn.) Backer (see p. 249); while Henschel erroneously referred it to *Connarus pentagynus* Lam.

## SAMADERA † Gaertner

SAMADERA INDICA Gaertn. Fruct. 2 (1791) 352, t. 156.

*Lanius* Rumph. Herb. Amb. 3: 194, t. 124.

This species is not represented in our Amboina collection.

\* Retained name, Vienna Code; *Pongelion* Adans. (1763) is older.

† Retained name, Vienna Code; *Locandi* Adans. (1763) is older.

The figure is very poor and does not conform very well with *Samadera indica* Gaertn., although the plant described is certainly referable to this genus. The only previously suggested reduction is Teysmann's opinion, quoted by Hasskarl, *Neue Schlüssel* (1866) 66, that it was a species of *Samadera*. Botanical material from the Moluccas may show *Lanius* to be specifically distinct from *Samadera indica* Gaertn.

#### SOULAMEA Lamarck

SOULAMEA AMARA Lam. *Encycl.* 1 (1785) 449.

*Cardiocarpus amarus* Reinw. *Syll. Ratisb.* 2 (1828) 14.

*Rex amaroris* Rumph. *Herb. Amb.* 2: 129, *t.* 41.

The Rumphian species was first reduced by Linnaeus to *Ophioxylon serpentinum* Linn., in *Stickman Herb. Amb.* (1754) 9, *Amoen. Acad.* 4 (1759) 121, an entirely erroneous disposition of it. Lamarck cites *Rex amaroris* Rumph. as a synonym of *Soulamea amara* Lam. in the original description of the genus and species, the description being based on actual specimens from New Britain; it is barely possible that the Moluccan form is specifically distinct from the New Britain one, but this can be determined only by a comparison of specimens from these localities.

#### BURSERACEAE

##### CANARIUM Linnaeus

CANARIUM DECUMANUM Gaertn. *Fruct.* 2 (1791) 99, *t.* 102.

*Pimela decumana* Blume *Mus. Bot.* 1 (1850) 223.

*Canariopsis decumana* Miq. *Fl. Ind. Bat.* 1<sup>2</sup> (1859) 652.

*Canarium decumanum* Rumph. *Herb. Amb.* 2: 166, *t.* 55.

This is not represented in our Amboina collections, and like several other species of the genus it must be interpreted largely from the description and the figure given by Rumphius. It is almost certain that the species as described by Engler, in *DC. Monog. Phan.* 4 (1883) 132, under *Canarium decumanum* is not the same as the plant that Rumphius described. The status of the species must await the results of further field work.

CANARIUM LEGITIMUM (Blume) Miq. *Fl. Ind. Bat.* 1<sup>2</sup> (1859) 647.

*Pimela legitima* Blume *Mus. Bot.* 1 (1850) 222.

*Dammara nigra legitima* Rumph. *Herb. Amb.* 2: 162, *t.* 53.

This is not represented in our Amboina collections. It is probable that Blume in describing the species correctly reduced



the Rumphian plant. Blume's species was based on actual specimens with a reference to the Rumphian name and figure.

**CANARIUM BALSAMIFERUM** Willd. Sp. Pl. 4<sup>2</sup> (1804) 760 (type!).

*Boswellia balsamifera* DC. Prodr. 2 (1825) 76 (type!).

*Pimela glabra* Blume Mus. Bot. 2 (1850) 222 (type!).

*Canariopsis glabra* Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 653 (type!).

*Canarium odoriferum* Ieue Rumph. Herb. Amb. 2: 156, t. 50.

This is not represented in our Amboina collections. The status of the species is wholly doubtful, and all the names cited above must be interpreted entirely from Rumphius, as all are based solely on his description and figure. Like a number of other species of *Canarium*, the exact status of *Canarium balsamiferum* Willd. must await further botanical exploration of Amboina: the only certain thing about the status of the species is that it is a true *Canarium*.

**CANARIUM COMMUNE** Linn. Mant. 1 (1767) 127 (type!).

*Canarium mehenbethene* Gaertn. Fruct. 2 (1791) 98, saltem quoad syn. Rumph.

*Canarium indicum* Linn. Amoen. Acad. 4 (1759) 143 pro minore parte.

*Canarium moluccanum* Blume Mus. Bot. 1 (1850) 216.

*Canarium vulgare* Rumph. Herb. Amb. 2: 145, t. 47, (excl. f. E, F. G?).

AMBOINA, Binting and the town of Amboina, *Robinson Pl. Rumph. Amb.* 381, September 27, 1913, in flower; Gelala, *Robinson Pl. Rumph. Amb.* 380, July 16, 1913, in fruit, locally known as *kanari*.

*Canarium vulgare* Rumph. is the whole basis of *Canarium commune* Linn., as originally published by Linnaeus in his Mantissa 1 (1767) 127, and the species must be interpreted from the Rumphian reference. The species has been correctly interpreted by practically all authors, as it is widely distributed in the Malay Archipelago and is a characteristic and well-known one. *Canarium indicum* Linn., not listed in Index Kewensis, is an older name, but I believe it should be abandoned for the reason that Linnaeus cited under it all the species of *Canarium* figured by Rumphius, t. 47 to 56, inclusive. He abandoned the name, apparently realizing later that numerous species were involved, and made the first plate, t. 47, the type of his *Canarium commune*. While the first plate cited under *Canarium indicum*, that is t. 47, might be interpreted as the type of *Canarium indicum* Linn., it really represents that species only in small part. I can see no valid reason for considering *Canarium moluccanum* Blume other than a form of *C. commune* Linn. Figures E, F,

and *G.*, of plate 47, probably represent merely variations of *Canarium commune* Linn. Hasskarl, *Neue Schlüssel* (1866) 36, places them under *C. commune* Linn. and *C. moluccanum* Blume.

**CANARIUM HIRSUTUM** Willd. Sp. Pl. 4<sup>2</sup> (1804) 760 (type!).

*Boswellia hirsuta* DC. Prodr. 2 (1825) 76 (type!).

*Pimela hirsuta* Blume Mus. Bot. 1 (1850) 233 (type!).

*Canariopsis hirsuta* Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 653 (type!).

*Canarium odoriferum hirsutum* Rumph. Herb. Amb. 2: 157, t. 51.

This is not represented in our Amboina collections. *Canarium hirsutum* Willd. and all of the synonyms cited above must be interpreted wholly from Rumphius, on whose description and figure all are based. The probabilities are that *Canarium hispidum* Blume will prove to be a synonym of it, but additional botanical material from Amboina will be necessary before the exact status of *Canarium hirsutum* Willd. can definitely be fixed.

**CANARIUM ACUTIFOLIUM** (DC.) comb. nov.

*Marignia acutifolia* DC. Prodr. 2 (1825) 79 (type!).

*Canarium nigrum* Roxb. Fl. Ind. ed. 2, 3 (1832) 138.

*Pimela acutifolia* Blume Mus. Bot. 1 (1850) 221, excl. syn. Zipp.

*Dammara nigra* Rumph. Herb. Amb. 2: 160, t. 52.

AMBOINA, Mahija, *Robinson Pl. Rumph. Amb. 377*, October 3, 1913, in light forests, altitude about 300 meters, locally known as *nanari*.

*Marignia acutifolia* DC. was based entirely on the Rumphian reference cited above and must be interpreted from it and from Amboina material. After a careful study of the description as given by Rumphius, I am convinced that the specimen cited above, although with an abnormal fasciated inflorescence, represents the plant described and in all probability the one figured, although the figure is crude and unsatisfactory. It is very certain that *Canarium rostratum* Zipp., referred here by Blume, is not the plant described or figured by Rumphius, but represents a distinct species apparently very closely allied to *Canarium oleosum* (Lam.) Merr. (*C. microcarpum* Willd.). It is to be noted that Blume, in citing Rumphius under *Pimela acutifolia*, erroneously gives the reference as "*Dammara nigra* II. p. 160, t. 72," instead of *Canarium nigrum* Herb. Amb. 2: 160, t. 52, as it should be. *Canarium nigrum* Roxb., which is scarcely described by him, belongs here at least in part. It is not listed in Index Kewensis. He cites *Dulcamara* (sic!) *nigra* Rumph. Amb. II. 162. t. 52 and 53, as representing *Canarium nigrum* Roxb; but the two plates manifestly represent two distinct species, the latter being *Canarium legitimum* Blume (see p. 300).

**CANARIUM OLEOSUM** (Lam.) Engl. in Engl. & Prantl Nat. Pflanzenfam. 3<sup>4</sup> (1896) 241.

*Amyris oleosa* Lam. Encycl. 1 (1783) 362 (type!).

*Canarium microcarpum* Willd. Sp. Pl. 4<sup>2</sup> (1805) 760 (type!).

*Nanarium minimum* s. *oleosum* Rumph. Herb. Amb. 2: 162 (t. 54?).

AMBOINA, Mahija, *Robinson Pl. Rumph. Amb. 376*, October 3, 1913, in light forest at an altitude of 325 meters, locally known as *nanari*.

*Amyris oleosa* Lam. and *Canarium microcarpum* Willd. are both based solely on Rumphius, and strictly must be interpreted by the Rumphian description and figure; they are, therefore, exact synonyms, and the older name is here retained. The reference of *Nanarium oleosum* Rumph. to *Pimela oleosa* Lour., Fl. Cochinch. (1790) 408, is a manifest error, as Loureiro's species was described from Cochin-China material that in all probability represents a species different from the Amboina one. Even though Loureiro cites the Rumphian name as a synonym and took his specific name from Rumphius, the reference to the Herbarium Amboinense should be excluded in interpreting his species. The present interpretation of *Canarium oleosum* (Lam.) Engl. follows the conventional interpretation of *Canarium microcarpum* Willd., and the Amboina specimen cited agrees closely with other botanical material from the Moluccas, so named, and with Rumphius's description; it does not, however, agree well with the figure given by Rumphius, which may indicate some mixture between the Rumphian figure and description. *Canarium rostratum* Zipp. should be critically compared with it.

**CANARIUM SYLVESTRE** Gaertn. Fruct. 2 (1791) 99, t. 102.

*Canarium silvestre alterum* Rumph. Herb. Amb. 2: 155, t. 49.

AMBOINA, Hoetomoeri road, *Robinson Pl. Rumph. Amb. 378*, September 30, 1913, in forests, altitude 400 meters; Hitoe messen, *Robinson Pl. Rumph. Amb. 379*, October 14, 1913, in forests, altitude about 200 meters, locally known as *dammara itam*, *nanari*, *nanari utan*, and *nanari puti daun alus*.

The specimens agree closely with both the description and figure given by Rumphius, and undoubtedly represent his *Canarium silvestre alterum*. While there may be some doubt as to whether or not the fruit figured by Gaertner represents the exact form described by Rumphius, still it seems best to retain Gaertner's name in its accepted application, especially in view of the fact that he cites the Rumphian figure and description as representing his species. The citation of Rumphius under *Canarium sylvestre* Gaertn. has been followed by all authors except Loureiro, who places it, with doubt, under *Pimela nigra*

Lour., Fl. Cochinch. (1790) 407, where it certainly does not belong.

**CANARIUM ZEPHYRINUM** Blume Mus. Bot. 1 (1850) 217; Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 643; March. in Baill. Adansonia 8 (1867-68) 53; Engl. in DC. Monog. Phan. 4 (1883) 149.

*Canarium zephyrinum* Rumph. Herb. Amb. 2: 151. t. 48.

This species is not represented in our Amboina collections, unless it be a form of *Canarium commune* Linn., which seems to be very probable. The figure is rather crude, but certainly represents a form very closely allied to *Canarium commune* Linn., where it has been referred by many authors, including Willdenow, Poiret, Schultes, and Don. *Canarium zephyrinum* Blume is a species of doubtful status and in the latest monograph of the family is placed under *Canarium* among the "species dubiae."

**CANARIUM ZEYLANICUM** (Retz.) Blume Mus. Bot. 1 (1850) 218.

*Amyris zeylanica* Retz. Obs. 4 (1786) 25.

*Arbor zeylanica* Rumph. Herb. Amb. 2: 153 (in Burm. obs.).

The reduction follows Blume, Mus. Bot. 1 (1850) 218, as this is undoubtedly the correct disposition of Rumphius's *Arbor zeylanica*.

**CANARIUM PIMELA** König in König & Sims Ann. Bot. 1 (1805) 361.

*Pimela nigra* Lour. Fl. Cochinch. (1790) 407.

*Canarium nigrum* Engl. in Engl. & Prantl Nat. Pflanzenfam. 3<sup>4</sup> (1896) 240, non Roxb.

*Canarium sinense* I Rumph. Herb. Amb. 2: 154?

The identity of *Canarium sinense* I of Rumphius with *Pimela nigra* Lour.=*Canarium pimela* König is entirely problematical as the description is inadequate. I merely follow Blume, Mus. Bot. 1 (1850) 220, in this reduction. Rumphius's material was from China.

**CANARIUM ALBUM** (Lour.) Räusch ex DC. Prodr. 2 (1825) 80.

*Pimela alba* Lour. Fl. Cochinch. (1790) 408.

*Canarium sinense* II Rumph. Herb. Amb. 2: 154.

The identity of *Canarium sinense* II with *Pimela alba* Lour. is more or less problematical, although Loureiro in the original publication of the species cites Rumphius, and the native names given by Rumphius agree with those cited by Loureiro. Rumphius's material was from China, not from Amboina. Engler, in DC. Monog. Phan. 4 (1883) 149, places *Canarium album* under the "species dubiae." \*

\* See Guillaumin, in Lecomte Fl. Gén. Indo-Chine 1 (1911) 714, who gives a full description and a figure of this species.

**PIMELA CARYOPHYLLACEA** Blume Mus. Bot. 2 (1850) 222.

*Canarium sinense* III Rumph. Herb. Amb. 2: 154 (type!).

Based originally on Chinese material by Rumphius. *Pimela caryophyllacea* Blume is based wholly on Rumphius's very brief description, and all that can be said regarding it is that it is probably a species of *Canarium*.

**CANARIOPSIS PAUCIJUGA** Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 653 (type!).

*Pimela paucijuga* Blume Mus. Bot. 1 (1850) 226 (type!).

*Canarium odoriferum* leve var. Rumph. Herb. Amb. 2: 156.

A species of entirely doubtful status, based wholly on the Rumphian description and to be interpreted solely by it. All that can be definitely stated regarding it is that it is a species of *Canarium*. Its further determination must await additional botanical material from Amboina.

#### **GARUGA** Roxburgh

**GARUGA ABILO** (Blanco) Merr. in Govt. Lab. Publ. (Philip.) 35 (1905) 73.

*Guaiacum abilo* Blanco Fl. Filip. (1837) 364.

*Garuga mollis* Turcz. in Bull. Soc. Nat. Mosc. 31<sup>1</sup> (1858) 475.

*Capraria* Rumph. Herb. Amb. 2: 139?

*Capraria* Rumph. is here tentatively referred to *Garuga abilo* Merr. The description applies closely, although Rumphius does not describe the flowers or the fruits. The only previously suggested reduction is Teysmann's opinion, quoted by Hasskarl, Neue Schlüssel (1866) 35, that *Capraria* might belong in the Sapindaceae.

#### **PROTIUM** Burman f.

**PROTIUM JAVANICUM** Burm. f. Fl. Ind. (1768) 88.

*Amyris protium* Linn. Mant. 1 (1767) 65.

*Tingulong* Rumph. Herb. Amb. 7: 54, t. 23, f. 1.

This reduction, manifestly the correct disposition of *Tingulong*, was made by Burman f. in the original description of *Protium javanicum* Burm. f.

### **MELIACEAE**

#### **TOONA** Roemer

**TOONA SURENI** (Blume) comb. nov.

*Swietenia sureni* Blume Cat. Gew. Buitenz. (1823) 72.

*Cedrela febrifuga* Blume Bijdr. (1825) 180.

*Surenus febrifuga* O. Kuntze Rev. Gen. Pl. 1 (1891) 111.

*Surenus* Rumph. Herb. Amb. 3: 66, t. 39.

This is not represented in our Amboina collections. The illustration is unmistakably that of *Cedrela*, or *Toona* as the

Indo-Malayan representatives of the group are called by some botanists. More than one species may be included in the description, Hasskarl, Neue Schlüssel (1866) 51, definitely stating that three are represented; namely, *Cedrela toona* Roxb., *C. febrifuga* Blume, and *C. inodora* Hassk. Roxburgh was the first botanist to recognize the approximate position of *Surenus* and reduced it to *Cedrela toona* Roxb., in Fl. Ind. ed. 2, 1 (1832) 635. The typical form of Roxburgh's species is confined to India, but a few varieties occur in the Malay Archipelago and in Australia.\* *Surenus alba* Rumph., Herb. Amb. 3: 126, is considered by Hasskarl, Neue Schlüssel (1866) 51, to represent *Cedrela inodora* Hassk., which species C. de Candolle treats as a variety of *Cedrela febrifuga* Blume; *Cedrela febrifuga* Blume var. *inodora* (Hassk.) C. DC., Records Bot. Surv. Ind. 3 (1908) 373. Hasskarl also refers to *Cedrela febrifuga* Blume the form described by Rumphius as *Surenus rubra* Rumph., Herb. Amb. 3: 126, which is probably the correct disposition of it. The oldest specific name, that supplied by *Swietenia sureni* Blume, is here adopted.

#### XYLOCARPUS Koenig

**XYLOCARPUS GRANATUM** Koen. in Naturf. 20 (1784) 2.

*Carapa obovata* Blume Bijdr. (1825) 179.

*Xylocarpus obovatus* Juss. Mém. Mus. Paris 19 (1830) 244.

*Carapa indica* Juss. in Diet. Sci. Nat. 7: 31.

*Carapa moluccensis* Lam. Encycl. 1 (1785) 621 p. p., quoad Rumph. t. 61, excl. descr.

*Monosoma littorata* Griff. Notul. 4 (1854) 502.

*Granatum litoreum* I *parvifolium* Rumph. Herb. Amb. 3: 93, t. 61.

This species is not represented in our Amboina collections. The description, but to a less degree the figure, given by Rumphius is clearly *Xylocarpus* (*Carapa*) *obovatus* Juss., as currently interpreted, but *Xylocarpus obovatus* Juss. is apparently identical with the earlier *Xylocarpus granatum* Koen. In Rumphius's description the shape of the leaves, rounded at the apex, and the size of the fruits, indicated as larger than those of *Granatum litoreum* I *latifolium*, are the determining points.

The synonymy between *Xylocarpus granatum* Koen. (*X. obovatus* Juss.) and *X. moluccensis* Lam. as interpreted below, is curiously confused. C. de Candolle † recognizes the two species *Carapa obovata* Blume and *Carapa moluccensis* Lam., but erroneously reduced *Xylocarpus granatum* Koen. to *Carapa*

\* See C. de Candolle, Records Bot. Survey India 3 (1908) 346.

† Monog. Phan. 1 (1878) 718, 719.

*moluccensis* Lam. Hiern \* erred in referring both to a single species, *Carapa moluccensis* Lam. The type of Koenig's species was from the Tranquebar coast, India, and his description applies unmistakably to the form with obovate leaves and large fruits; that is, the species that grows in the mangrove swamps; "folia \* \* \* oblongo-clavata, rotundata;" "Habitat in silvis rhizophoreis." Lamarck, in the original description of *Carapa moluccensis*, which was based wholly on "*Granatum litoreum* s. *Martahul* Rumph. Amb. 3. p. 92. Tab. 61," confused the two forms; the plate reference is to *Xylocarpus granatum* Koenig, but the description that he compiled was from *Granatum litoreum* I *latifolium* Rumph. as indicated by the page reference and his description. He disposed of t. 62 of the Herbarium Amboinense, to which his description wholly applies, thus: "Variat foliis acutioribus. Ibidem t. 62." The two species are very strongly marked. *Xylocarpus granatum* Koen. grows in the mangrove swamps and has oblong to obovate leaflets, very large fruits, and a smooth, rather thin bark. *Xylocarpus moluccensis* Lam. grows on the open coasts and has usually ovate, acute leaflets; much smaller fruits than *X. granatum* Koen.; and a thick, very flaky bark.

**XYLOCARPUS MOLUCCENSIS** (Lam.) M. Roem. Syn. Hesper. (1846) 124 (type!).

*Carapa moluccensis* Lam. Encycl. 1 (1785) 621, quoad descr., excl. Rumph. t. 61 (type!); C. DC. Monog. Phan. 1 (1878) 719, excl. syn. Koenig et Willdenow.

*Carapa rumphii* Kostel. Allg. Med.-Pharm. Fl. 5 (1836) 1988 (type!).

*Xylocarpus carnulosus* Zoll. & Mor. Nat. Geneesk. Arch. Neerl. Ind. 2 (1845) 582, ex descr.

*Xylocarpus forstenii* Miq. Ann. Mus. Bot. Lugd. Bat. 4 (1868) 62, ex descr.

*Granatum litoreum* I *latifolium* Rumph. Herb. Amb. 3: 92, t. 62.

*Granatum litoreum* III *latissimum* Rumph. Herb. Amb. 3: 92.

AMBOINA, Amahoesoe, Robinson Pl. Rumph. Amb. 491, September 19, 1913, along the seashore.

Lamarck, as noted above, in proposing the binomial *Carapa moluccensis*, based his description on *Granatum litoreum* I *latifolium*, but erroneously referred to his species t. 61 of the Herbarium Amboinense, which is *Xylocarpus granatum* Koenig. His species, manifestly, should be interpreted by the form described, rather than by the figure that he erroneously referred to it. The rather confused synonymy between *Xylocarpus granatum* Koenig and *X. moluccensis* M. Roem., is here discussed

\* Hooker f. Fl. Brit. Ind. 1 (1875) 567.

under the former. The Rumphian illustration, *t.* 62, is the type and whole basis of *Carapa rumphii* Kostel. *Xylocarpus carnulosus* Zoll. & Mor., type from eastern Java, and *X. forstenii* Miq., type from Celebes, appear to be synonymous with *Xylocarpus moluccensis* M. Roem.

#### SANDORICUM Cavanilles

**SANDORICUM KOETJAPE** (Burm. f.) Merr. in Philip. Journ. Sci. 7 (1912) Bot. 237.

*Melia koetjape* Burm. f. Fl. Ind. (1768) 101.

*Trichilia nervosa* Vahl Symb. 1 (1790) 31.

*Sandoricum indicum* Cav. Diss. 4 (1787) 359, *t.* 202, 203.

*Sandoricum domesticum* Rumph. Herb. Amb. 1: 167, *t.* 64.

AMBOINA, Robinson Pl. Rumph. Amb. 488, July 30, 1913, near the town of Amboina.

The generic name *Sandoricum* was apparently taken from Rumphius, and the form figured and described by him has been consistently referred to *Sandoricum indicum* Cav., manifestly a synonym of *Melia koetjape* Burm. f. Burman's specific name, being much the older, has been previously adopted by me, and under our rules of nomenclature it must be maintained. The forms briefly described by Rumphius as *Sandoricum silvestre* and *Sandoricum Cajim Guler* are undoubtedly referable to *Sandoricum koetjape* Merr., the former the spontaneous form with acid fruits, the latter with rather large, sweet fruits. Like most cultivated fruit trees, considerable variation is found in the characters of the fruit of the santol.

#### DYSOXYLUM Blume

**DYSOXYLUM EUPHLEBIUM** Merr. in Philip. Journ. Sci. 9 (1914) Bot. 305.

*Alliaria* Rumph. Herb. Amb. 2: 81, *t.* 20.

AMBOINA, Hitoe messen, Robinson Pl. Rumph. Amb. 489, November 6, 1913, in forests, altitude about 150 meters.

This specimen certainly represents *Alliaria* Rumph., of which Rumphius figured a fruiting specimen. It is also apparently identical with the Philippine *Dysoxylum euphlebiium* Merr., as a careful comparison between the specimen and the type of the latter species shows no essential differential characters. It is not *Dysoxylum alliaceum* Blume, which was described from Javan specimens. It was referred to *Dysoxylum alliaceum* Blume, Bijdr. (1825) 172, which disposition of it was accepted by Henschel, Walpers, Dietrich, and Miquel. Hamilton, Mem. Wern. Soc. 6 (1832) 305, placed it under *Guarea alliaria* Ham.



the actual type of which, however, was a Bengal plant that is *Dysoxylum hamiltonii* Hiern. Hasskarl, Cat. Hort. Bot. Bogor. (1844) 221, erroneously reduced it to *Hartighsea forsteri* Juss.=*Dysoxylum forsteri* C. DC., a species of Australia and Polynesia; while Roemer, Hesper. (1844) 101, placed it under *Prasoxylum alliaceum* Roem., presumably a synonym of *Dysoxylum alliaceum* Blume, of Java and Sumatra.

**DYSOXYLUM** sp.

*Arbor nussalavica* Rumph. Herb. Amb. 7: 14, t. 8, f. 2.

Manifestly this is a species of *Dysoxylum*, and one that should be readily recognized when once collected. Hamilton thought it was referable to the genus *Guarea*, and Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 186, thought it was referable to *Epicharis*=*Dysoxylum* Blume.

**DYSOXYLUM** sp.

*Arbor sebi* Rumph. Herb. Amb. 7: 7.

The plant described was from Java, there known as *cadoja*. This name is still applied to two or more species of *Dysoxylum* in Java, so that *Arbor sebi* is probably referable to this genus.

**LANSIUM** (Rumphius) Correa

**LANSIUM DOMESTICUM** Correa in Ann. Mus. Hist. Nat. Paris 10 (1807) 157, t. 10, f. 1; Poir. in Lam. Encycl. Suppl. 3 (1813) 299; Jack in Trans. Linn. Soc. 14 (1823) 115, t. 4.

*Lansium* Rumph. Herb. Amb. 1: 151, t. 54.

This common and well-known Malayan fruit tree is not represented in our Amboina collections. *Lansium* was originally reduced, with doubt, to *Averrhoa acida* Linn. by Linnaeus, Amoen. Acad. 4 (1759) 119, in which he was followed by a few authors. Correa, Jack, Poiret, and recent authors generally, have referred it to *Lansium domesticum*, the correct disposition of it. The generic name *Lansium* is taken from Rumphius, and by some authors Rumphius is quoted as its author. The tree is commonly cultivated in most parts of the Malayan region, but like many other cultivated plants, it is poorly represented in herbaria.

**AGLAIA** Loureiro

**AGLAIA ODORATA** Lour. Fl. Cochinch. (1790) 173.

*Camunium sinense* Rumph. Herb. Amb. 5: 26, t. 18, f. 1.

*Tsjiulang* Rumph. Herb. Amb. 7: 38.

This commonly cultivated ornamental tree is not represented in our Amboina collections, but the figure cited and both of the

descriptions apply unmistakably to this well-marked species. *Camunium sinense* Rumph. was cited by Loureiro as a synonym of *Aglaia odorata* Lour. in the original description of that species, in which reduction he has been followed by practically all authors, as it is manifestly the correct disposition of it. *Vitex pinnata* Linn., Sp. Pl. (1753) 638, is cited in Index Kewensis as a synonym of *Aglaia odorata* Lour., but it is not clear on what grounds. It is based wholly on *Pistacio-vitex* Linn., Fl. Zeyl. No. 415, the description of which is clearly a *Vitex*, certainly no meliaceous plant. Trimen, Fl. Ceyl. 3 (1895) 358, after examining Hermann's specimen, considers it to be a variety of *Vitex altissima* Linn. f. Druce, Bot. Exch. Club (1914) 413, has erroneously transferred *Vitex pinnata* Linn. to *Aglaia* as *A. pinnata* (Linn.) Druce, as the equivalent of *Aglaia odorata* Lour. *Tsjiulang*, as described by Rumphius in the Auctuarium is clearly the same as *Camunium sinense* Rumph., the common name of the latter being also *tsjiulang*. Hasskarl, Neue Schlüssel (1866) 190, thought that it might be *Aglaia odorata* Lour. or *Aglaia odoratissima* Blume.

**AGLAIA SILVESTRIS** (Roem.) comb. nov. § *Euaglaia*.

*Lansium silvestre* Roem. Hesper. (1846) 99, ex Hassk. Neue Schlüssel (1866) 20 (type!).

*Lansium silvestre* Rumph. Herb. Amb. 1: 153, t. 55.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb.* 490, October 11, 1913, in forests, altitude about 150 meters.

Arbor circiter 16 m alta, ramulis et petiolis et inflorescentiis dense uniformiter cupreo- vel brunneo-lepidotis; foliis circiter 30 cm longis, foliolis circiter 12, suboppositis, oblongis, tenuiter acuminatis, vetustioribus utrinque glabris, usque ad 13 cm longis; paniculis 20 ad 25 cm longis, anguste pyramidatis, multifloris; floribus 5-meris, breviter pedicellatis, in ramulis ultimis racemose dispositis, calycis profunde obtuse 5-dentatis; tubo subellipsoideo, glabro, libero.

A tree about 16 m high, the branchlets, petioles and rachis, and inflorescence densely and uniformly cupreous- or brownish-lepidote, the indumentum, however, not at all stellate-hairy. Leaves alternate, about 30 cm long, 6- or 7-jugate; leaflets firmly chartaceous to subcoriaceous, subopposite, oblong, 8 to 13 cm long, 3 to 3.8 cm wide, rather pale when dry, shining, base acute to somewhat rounded, sometimes slightly inequilateral, apex slenderly long-acuminate, the acumen 1 to 1.5 cm long, the lower surface browner than the upper, at maturity wholly glabrous; lateral nerves about 14 on each side of the midrib; petiolules 2 to 4 mm long. Panicles terminal and in

the upper axils, narrowly pyramidal, 20 to 25 cm long, their peduncles 4 to 6 cm long, the lower branches spreading, 4 to 6 cm long, the upper shorter. Flowers numerous, racemously arranged on the ultimate branchlets, their pedicels 1 mm long or less, and with the calyces more or less lepidote. Calyx about 1.4 mm long, prominently 5-toothed, the teeth rounded or obtuse, 0.6 mm long. Petals 5, free, glabrous, oblong to elliptic-oblong, 2.7 mm long, rounded. Staminal-tube free, glabrous, subellipsoid, contracted at the apex, the orifice small, round. Stamens 5, the anthers attached near the base of the tube, about 1 mm long.

*Aglaia silvestris* Merr., typified by the specimen cited above, is certainly the form described and figured by Rumphius as *Lansium silvestre*, the exact status of which has not been previously determined. Loureiro, Fl. Cochinch. (1790) 272, placed it under *Quinaria lansium* Lour.=*Clausena punctata* (Retz.) W. & A., a species that has little in common with the form Rumphius described. It was later referred by de Candolle, Prodr. 1 (1824) 537, to *Cookia punctata* Retz., by reduction of *Quinaria lansium* Lour. *Lansium silvestre* Roem., Hesper. (1846) 99, is apparently merely a repetition of Rumphius's name. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 20, correctly placed it in the genus *Aglaia*.

Its alliance is with *Aglaia perviridis* Hiern and *Aglaia laxiflora* Miq., but it does not appear to be any of the numerous described forms and has been accordingly redescribed here as a new species. It is apparently the form described by Miquel as *Aglaia ganggo* Miq. forma *amboinensis* Miq., in Ann. Mus. Bot. Lugd.-Bat. 4 (1868) 47, but I consider it to be specifically distinct from *Aglaia ganggo* Miq., of which I have a series of excellent specimens.

AGLAIA sp.

*Lansium montanum* Rumph. Herb. Amb. 1: 154, t. 56.

Probably an *Aglaia*, and one that should very readily be recognized when once collected, as Rumphius's figure presents a very characteristic species. Jack, Trans. Linn. Soc. 14 (1823) 118, considered that it closely resembled his *Milnea montana*, of Sumatra=*Aglaia*; and Roemer, Hesper. (1846) 99, placed it under *Selbya montana* Roem., perhaps based on Rumphius's *Lansium montanum*, perhaps based on *Milnea montana* Jack (original publication not seen by me). Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 20, considers it to be a species of *Aglaia*, which is probably the correct disposition of it, although

it might possibly be a small-flowered species of *Dysoxylum*. In the plate the fruits are drawn entirely out of proportion to the leaves according to the measurements given by Rumphius.

MELIACEAE OF UNCERTAIN STATUS

*Vidoricum silvestre* Rumph. Herb. Amb. 1: 173, t. 67.

This disposition of *Vidoricum silvestre* is suggested chiefly because the seeds, as figured by Rumphius, almost certainly pertain to some meliaceous plant. The description of the species is indefinite, and from it alone no rational idea of the plant can be obtained.

DICHAPETALACEAE

DICHAPETALUM Thouars

*DICHAPETALUM MOLUCCANUM* sp. nov.

*Funis butonicus minor* Rumph. Herb. Amb. 5: 77, t. 41, f. 2.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb. 602* (type), November 26, 1913, in light forests, altitude about 20 meters.

Frutex scandens, ut videtur dioicus, ramulis junioribus inflor-  
escentiisque leviter cinereo-pubescentibus, foliis subtus ad costa  
nervisque plus minusve ciliato-hirsutis; foliis oblongis, charta-  
ceis, usque ad 16 cm longis, integris, utrinque subaequaliter an-  
gustatis, basi acutis, apice breviter acuminatis, nervis utrinque  
circiter 7, subtus prominentibus, in siccitate nigrescentibus;  
cymis axillaribus, solitariis, pedunculatis, usque ad 2 cm longis,  
laxis, paucifloris; floribus ♂ 5-meris, circiter 3 mm diametro,  
sepalis extus parce pubescentibus, petalis oblongis, truncatis,  
vix retusis, glabris, glandulis pubescentibus.

A scandent shrub. Branches terete, glabrous, slender, brownish or somewhat reddish-brown, lenticellate, the branchlets similar in color, slightly pubescent with pale, scattered, usually appressed hairs. Leaves chartaceous, oblong, 11 to 16 cm long, 4 to 6 cm wide, entire, subequally narrowed to the acute, equilateral, or rarely slightly inequilateral base, and to the distinctly but rather shortly blunt-acuminate apex, brown or olivaceous-brown when dry, the upper surface shining, quite glabrous, the lower surface of nearly the same color, ciliate-hirsute with scattered, spreading, pale hairs on the midrib, and to a less extent on the primary nerves, reticulations, and sometimes even the margins; lateral nerves about 7 on each side of the midrib, prominent, curved, blackish when dry, faintly anastomosing, the reticulations distinct; petioles about 4 mm long, sparingly grayish-pubescent, ultimately glabrous. Cymes axillary, solitary, slightly grayish-pubescent with short appressed hairs.

peduncled, about 2 cm long and wide, dichotomous, rather lax, few-flowered, the peduncle about as long as or slightly exceeding the petiole. Male flowers pale yellow, about 3 mm in diameter, their pedicels pubescent, 1 to 2 mm long, the bracteoles very small. Calyx about 2 mm long, externally cinereous-pubescent with short, appressed hairs, the lobes 5, oblong-ovate, obtuse, about 1.5 mm long. Petals glabrous, oblong, apex rounded-subtruncate, entire or very obscurely notched, not retuse or split, nearly 1.5 mm long. Stamens 5, about 1.5 mm long, glabrous. Glands densely pubescent, small. Pistillate or perfect flowers not seen.

This species is apparently closely allied to *Dichapetalum timoriense* (DC.) Engl., from which it is distinguished by certain floral characters, the flowers dioecious (or polygamous?), the glands densely pubescent, not glabrous. It seems to be even more closely allied to *Dichapetalum papuanum* (Becc.) Engl., of New Guinea, but has rather smaller, differently shaped leaves, while the petals are truncate and entire, rarely minutely notched, not at all bifid at the apex.

Rumphius's description and figure agree sufficiently well with the specimen cited above to warrant the reduction of *Funis butonicus minor* to *Dichapetalum moluccanum* Merr. The only previously suggested reductions are Burman's opinion that it represented some species in the *Contortae* and Lamarck's opinion that it was near *Menispermum*.

## EUPHORBIACEAE

### PHYLLANTHUS Linnaeus

PHYLLANTHUS NIRURI Linn. Sp. Pl. (1753) 981.

*Herba moeroris I alba* Rumph. Herb. Amb. 6: 41, t. 17, f. 1.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 350*, July 20, 1913, in ditches at low altitudes.

This reduction was made by Linnaeus, in *Stickman Herb. Amb. (1754) 26*, *Amoen. Acad. 4 (1759) 134*, *Syst. ed. 10 (1759) 1264*, *Sp. Pl. ed. 2 (1763) 1392*, has been accepted by all authors who have had occasion to cite the Rumphian figure, and is certainly the correct disposition of *Herba moeroris I alba*.

PHYLLANTHUS URINARIA Linn. Sp. Pl. (1753) 982.

*Herba moeroris II rubra* Rumph. Herb. Amb. 6: 42, t. 17, f. 2.

AMBOINA, Hatiwe ketsjil, *Robinson Pl. Rumph. Amb. 351*, July 20, 1913, on coral limestone at low altitudes.

This reduction was made by Linnaeus in the same publications as those in which *Herba moeroris I alba* was reduced to

*Phyllanthus niruri* Linn., has been accepted by all authors, and is certainly the correct disposition of it.

PHYLLANTHUS EMBLICA Linn. Sp. Pl. (1753) 982.

Mirobalanus embilica Rumph. Herb. Amb. 7: 1, t. 1.

This species is not represented in our Amboina collections. The reduction was first made by Linnaeus, in Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1265, Sp. Pl. ed. 2 (1763) 1393, which is certainly the correct disposition of it. Rumphius notes that it was an introduced plant in Amboina.

#### CICCA Linnaeus

CICCA ACIDA (Linn.) comb. nov.

*Averrhoa acida* Linn. Sp. Pl. (1753) 428.

*Cicca disticha* Linn. Mant. 1 (1767) 124.

*Cicca nodiflora* Lam. Encycl. 2 (1786) 1.

*Phyllanthus distichus* Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 413.

*Phyllanthus cicca* Muell.-Arg. in Linnaea 32 (1863) 90.

*Cicca acidissima* Blanco Fl. Filip. (1837) 700.

*Phyllanthus acidissimus* Muell.-Arg. in Linnaea 32 (1865) 50.

*Phyllanthus cheramela* Roxb. Hort. Beng. (1814) 104.

*Phyllanthus acidus* Skeels in U. S. Dept. Agr. Bur. Pl. Ind. Bull. 148 (1909) 17.

*Cheramela* Rumph. Herb. Amb. 7: 34, t. 17, f. 2.

This widely cultivated tree is not represented in our Amboina collections. The reduction of *Cheramela* Rumph. to *Averrhoa acida* Linn. was first made by Linnaeus, Amoen. Acad. 4 (1759) 136, Sp. Pl. ed. 2 (1762) 613, in which he was followed by Burman f. and Lamarck. Willdenow, followed by numerous other authors, referred it to *Cicca disticha* Linn. Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1859) 372, referred it to *Cicca nodiflora* Lam., while Henschel and Pritzel referred it to *Phyllanthus cheramela* Roxb. All of these names are synonyms of *Cicca acida* (Linn.) Merr., *Averrhoa acida* Linn. being a synonym of *Cicca disticha* Linn. (*Phyllanthus distichus* Muell.-Arg.), but much earlier. I prefer to follow Robinson \* in retaining *Cicca* as a genus distinct from *Phyllanthus*.

#### BREYNIA Forster

BREYNIA CERNUA (Poir.) Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 439.

*Phyllanthus cernuus* Poir. in Lam. Encycl. 5 (1804) 298.

*Melanthesa cernua* Decne. in Nuov. Ann. Mus. Paris 3 (1834) 483.

*Aalius parvifolia* Rumph. Herb. Amb. 3: 207.

AMBOINA, Batoe gadjah and Negri lama, *Robinson Pl. Rumph. Amb.* 499, 339, August 5 and October 8, 1913, in light forests, altitude 175 to 250 meters, locally known as *kartu utan*.

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\* Philip. Journ. Sci. 4 (1909) Bot. 87.

The description is that of a *Breynia* in all respects, and undoubtedly *Aalius parvifolia* Rumph. is the same as *Breynia cernua* Muell.-Arg. The red, accrescent calyx is very characteristic. The only other suggested reduction of Rumphius's species is Hasskarl's, *Neue Schlüssel* (1866) 67, reference of it to *Sauropus albicans* Blume, which is certainly incorrect.

*Aalius latifolia* Rumph., *Herb. Amb.* 3: 207, very briefly described, is compared with *Aalius parvifolia*, having leaves two to three times as long as the latter. Hasskarl, *Neue Schlüssel* (1866) 67, surmises that it may be a *Glochidion*. Its status is quite indeterminable from the data given by Rumphius.

#### BACCAUREA Loureiro

##### BACCAUREA NANIHUA sp. nov.

*Nani hua* Rumph. *Herb. Amb.* 3: 21, t. 9.

AMBOINA Koesoekoesoe sereh and Mahija, *Robinson Pl. Rumph. Amb.* 331 (type), 330, October 3 and August 7, 1913, in light forest, altitude about 250 meters, locally known as *haharu* and as *makarlasi*.

Arbor circiter 15 m alta, inflorescentiis dense ferrugineo-pubescentibus; foliis oblongo-ovatis, coriaceis, glabris, in siccitate brunneis, usque ad 16 cm longis; integris, basi rotundatis, apice obtusis ad latissime obtuseque acuminatis, nervis utrinque circiter 9, subtus valde prominentibus; racemis solitariis vel binis, 3 ad 5 cm longis, e ramis infra foliis, paucifloris, omnibus partibus dense ferrugineo-pubescentibus, sepalis oblongis, circiter 3 mm longis; fructibus depresso-globosis, 2 ad 2.3 cm diametro, extus ferrugineo-pubescentibus vetustioribus glabrescentibus, brunneis, pericarpio crassissimo.

A tree about 15 m high, the very young branchlets and petioles slightly pubescent, the inflorescence densely ferruginous-pubescent, otherwise glabrous. Branches and branchlets brown or reddish-brown, terete. Leaves coriaceous, brown and somewhat shining when dry, oblong-ovate, entire, 11 to 16 cm long, 5 to 8 cm wide, base rounded, narrowed upward to the obtuse or very broadly blunt-acuminate apex, the lower surface paler than the upper; lateral nerves about 9 on each side of the midrib, very prominent on the lower surface, curved-anastomosing, the reticulations distinct; petioles 2.5 to 3.5 cm long. Pistillate racemes solitary or in pairs, from the branches below the leaves, few-flowered, 3 to 5 cm long, simple, all parts densely ferruginous-pubescent. Pedicels about 4 mm long, jointed at about the middle, here supplied with a single, broadly ovate, 1.5 mm long bracteole. Sepals 5, oblong to oblong-ovate, subequal, subacute or obtuse, about 3 mm long, densely pubescent on both

surfaces. Ovary ovoid, densely pubescent. Fruits brown when dry, depressed-globose, 2 to 2.5 cm in diameter, normally 3-celled, in cross-section with three very broadly rounded angles, more or less ferruginous-pubescent, in age becoming nearly glabrous, the pericarp very thick, inside reddish-brown when dry, somewhat spongy in texture.

*Nani hua* Rumph. was reduced by Loureiro to *Baccaurea ramiflora* Lour., Fl. Cochinch. (1790) 661, the type of the genus, but *Baccaurea ramiflora* Lour. was actually described from specimens taken from cultivated trees in Cochinchina and is not the same as the Amboina *Nani hua* of Rumphius. Henschel, Poiret, and Pritzel accepted Loureiro's reduction of *Nani hua*. DeVriese and Poiret, in Lam. Encycl. 4 (1798) 419, thought that it might be a species of *Eugenia*, while Hasskarl, Neue Schlüssel (1866) 47, quotes Teysmann's opinion that it might belong in the *Myrtaceae*.

*Baccaurea nanihua* Merr. closely resembles *Baccaurea philippinensis* Merr. and *Baccaurea bracteata* Muell.-Arg. and manifestly belongs in the same group as these two species. It is readily distinguished from both, however, by its more numerous nerved leaves.

#### ANTIDESMA Burman

**ANTIDESMA BUNIUS** (Linn.) Spreng. Syst. 1 (1825) 826.

*Stilago bunius* Linn. Mant. 1 (1767) 122.

*Antidesma rumphii* Tul. in Ann. Sci. Nat. III 15 (1851) 238 (type).

**Bunius sativa s. domestica** Rumph. Herb. Amb. 3: 204, t. 131.

**Bunius agrestis** Rumph. Herb. Amb. 3: 205, t. 131, f. A.

AMBOINA, Robinson Pl. Rumph. Amb. 334, September 13, 1913, from cultivated trees in the town of Amboina, locally known as *kuti kata* and *kata kuti*.

*Bunius sativus* Rumph. (*B. domestica* Rumph.) was reduced by Linnaeus to *Stilago bunius* Linn. in the original description of that species, which, as *Antidesma bunius* (Linn.) Spreng., is certainly the correct disposition of it. *Antidesma rumphii* Tul. was based wholly on *Bunius agrestis* Rumph., which seems to me to be merely the spontaneous or subsponaneous form of *Antidesma bunius* Spreng.; I have accordingly here reduced *Antidesma rumphii* Tul. to *Antidesma bunius* (Linn.) Spreng.

**ANTIDESMA STIPULARE** Blume Bijdr. (1826) 1125.

*Antidesma amboinense* Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1864) 218.

**Arbor nuda** Rumph. Herb. Amb. 3: 89, t. 59.

AMBOINA, Lateri, Batoe merah River, and vicinity of the town of Amboina. Robinson Pl. Rumph. Amb. 355, 356, August, September, and October, 1913. in light woods, altitude 40 to 150 meters, locally known as *kata kuti kam-*



bing; probably referable here also is *Rel. Robins. 1709*, from Hitoe messen, Amboina, November 6, 1913, in forests, altitude about 150 meters, with smaller, narrower stipules and apparently more fleshy, slightly larger fruits than the other specimens.

The Amboina specimens, typical *Antidesma amboinense* Miq., differ from material of *Antidesma stipulare* Blume from Nusa Kambangan, the type locality of Blume's species, and from Java in some details, notably in their larger, differently shaped stipules, but I have followed J. Mueller in the reduction of *Antidesma amboinense* Miq. to *Antidesma stipulare* Blume. *Arbor nuda* Rumph. was reduced to the genus *Antidesma* by Teysmann, as quoted by Hasskarl, *Neue Schlüssel* (1866) 54.

The details of the figure are not good, the leaves being represented as with but 5 to 8 pairs of nerves, while in the Amboina specimens there are usually about 15 pairs of nerves, and the characteristic stipules are not shown at all. However, these are indicated in the description thus: "folia \* \* \* suprema vero prope suum ortum unum alterumve gerunt foliorum seu squamulas." In spite of the discrepancies between the figure and the specimens cited above, I am confident that *Arbor nuda* Rumph. is here correctly interpreted, although some future monographer may prefer to reinstate Miquel's *Antidesma amboinense* as a species distinct from the Javan *Antidesma stipulare* Blume.

#### CROTON Linnaeus

CROTON TIGLIUM Linn. Sp. Pl. (1753) 1004.

*Tigium officinale* Klotz. in Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 1: 418.

*Granum moluccanum* Rumph. Herb. Amb. 4: 98, t. 42.

This is not represented in our Amboina collections. The reduction of *Granum moluccanum* to *Croton tiglium* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1275, Sp. Pl. ed. 2 (1763) 1426, which is the correct disposition of it, and which has been accepted by all authors.

#### MICROCOCCA Bentham

MICROCOCCA MERCURIALIS (Linn.) Benth. in Hook. Niger Fl. (1849) 503.

*Tragia mercurialis* Linn. Sp. Pl. (1753) 980.

*Urtica mortua* Rumph. Herb. Amb. 6: 49, t. 20, f. 2?

Nothing resembling this species is represented in our Amboina collections. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst.

ed. 10 (1759) 1264, which, as *Micrococca mercurialis* Benth., is possibly the correct disposition of it. The species, however, is not known from the Moluccas. Pax and K. Hoffmann, in Engl. Pflanzenreich 63 (1914) 133, give its range as tropical Asia and Africa, extending to the southeast only as far as Malacca.

#### MALLOTUS Loureiro

**MALLOTUS TILLIFOLIUS** (Blume) Muell.-Arg. in Linnaea 34 (1865) 190.

*Rottlera tiliifolia* Blume Bijdr. (1825) 607.

*Halecus litorea* Rumph. Herb. Amb. 3: 196, t. 126.

AMBOINA, Robinson Pl. Rumph. Amb. 367, 368, August 8, 1913, along the seashore near the town of Amboina, locally known as *baru laut*.

*Halecus litorea* Rumph. was originally reduced by Linnaeus to *Croton aromaticus* Linn., in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 125, in which entirely erroneous reduction he was followed by Loureiro, Murray, Willdenow, Persoon, Henschel, and Miquel. Lamarck, Encycl. 2 (1786) 206, cites it under *Croton tiliifolius* Lam. var. *aromaticus* Lam., the type of the species being a specimen from Mauritius, the variety being merely a reduction of *Croton aromaticus* Linn. Teysmann's reduction of it to *Schmidelia*, as quoted by Hasskarl, Neue Schlüssel (1866) 66, is entirely wrong and was probably due to some error in transcribing Teysmann's notes.

#### MELANOLEPIS Reichenbach f. and Zollinger

**MELANOLEPIS MULTIGLANDULOSA** (Reinw.) Reichb. f. & Zoll. in Linnaea 28 (1856) 324.

*Croton multiglandulosus* Reinw. ex Blume Cat. Gew. Buitenz. (1823) 105.

*Rottlera multiglandulosa* Blume Bijdr. (1825) 609.

*Melanolepis calcosa* Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 399.

*Mallotus moluccanus* Muell.-Arg. in Linnaea 34 (1863) 185, non *Croton moluccanus* Linn.

*Melanolepis moluccana* Pax & K. Hoffm. in Engl. Pflanzenreich 63 (1914) 142, non *Croton moluccanus* Linn.

*Folium calcosum* Rumph. Herb. Amb. 4: 129, t. 64.

*Folium calcosum* II Rumph. Herb. Amb. 4: 130.

AMBOINA, Hitoe messen and Ayer putri, Robinson Pl. Rumph. Amb. 359, 360, August and October, 1913, on forested limestone hills and along road-sides, altitude 5 to 150 meters, locally known as *kayu kapor*.

*Folium calcosum* Rumph. was reduced by Roxburgh, Fl. Ind. ed. 2, 3 (1832) 690, to *Ricinus dicoccus* Roxb., the description being based on specimens originating in Amboina and cultivated in the botanic garden at Calcutta; it is a synonym of *Melanolepis multiglandulosa* Reichb. f. & Zoll. Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1859) 399, reduced *Ricinus dicoccus* Roxb. together with

*Folium calcosum* Rumph. to *Melanolepis calcosa* Miq., which is also a synonym of *Melanolepis multiglandulosa* Reichb. f. & Zoll. Hasskarl, Neue Schlüssel (1866) 85, reduced *Folium calcosum* II to *Melanolepis multiglandulosa* Reichb. f. & Zoll.

In regard to the proper specific name for this widely distributed and well-known species, I cannot follow J. Mueller in calling it *Mallotus moluccanus* Muell.-Arg. or Pax and K. Hoffmann in calling it *Melanolepis moluccana* Pax & K. Hoffm., for the reason that nothing in the Linnean description of *Croton moluccanus* Linn., the name-bringing synonym, applies to this species. It was based on two references; the first, *Fl. Zeyl.* 346, and the second, *Nux juglans moluccana bifida* Burm. *Fl. Zeyl.* 170. The first reference, *Fl. Zeyl.* 364, is *Givotia rottleriformis* Griff., according to the actual specimens, leaves only, in Hermann's herbarium.\* The second reference, from which Linnaeus took his specific name, is *Aleurites moluccana* (Linn.) Willd. without the slightest doubt. The specimen in Linnaeus's herbarium, quoted by J. Mueller, in DC. Prodr. 15<sup>2</sup> (1866) 958, under *Mallotus moluccanus* Muell.-Arg., is manifestly not the type and should be ignored in interpreting the Linnean species.

#### MACARANGA Thouars

MACARANGA MAPPA (Linn.) Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 1000.

*Ricinus mappa* Linn. in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1277, Sp. Pl. ed. 2 (1763) 1430 (type!).

*Acalypha mappa* Willd. Sp. Pl. 4 (1805) 526 (type!).

*Mappa moluccana* Spreng. Syst. 3 (1826) 878 (type!).

*Tanarius mappa* O. Ktze. Rev. Gen. Pl. 2 (1891) 620 (type!).

*Folium mappae* Rumph. Herb. Amb. 3: 172, t. 108.

AMBOINA, Waë, Robinson Pl. Rumph. Amb. 361, November 26, 1913, in light forest, altitude about 20 meters, locally known as *hahuhun*.

*Folium mappae* Rumph. is the whole basis of *Ricinus mappa* Linn., and thus typifies all the synonyms cited above, for *Mappa moluccana* Spreng. is merely a new name for *Ricinus mappa* Linn. Burman f., Lamarck, Poiret, Roxburgh, and Pritzel followed Linnaeus in considering it as *Ricinus mappa* Linn., but other authors have followed Willdenow and Sprengel and have placed it under *Acalypha* and *Mappa*.

*Macaranga mappa* (Linn.) Muell.-Arg. is an imperfectly known species. In de Candolle's Prodr. 15<sup>2</sup> (1866) 1000 J. Mueller apparently compiled his description largely, if not wholly, from Rumphius and erroneously reduced *Croton grand-*

\* See Trimen Fl. Ceyl. 4 (1898) 50.

*ifolius* Blanco to *Macaranga mappa* Muell.-Arg. as a synonym. Pax and K. Hoffmann, in Engl. Pflanzenreich 63 (1914) 320, assumed that Mueller was correct in his reduction of Blanco's species, but drew up their description and prepared a figure of *Macaranga mappa* wholly from Philippine material. The Philippine material cited by these authors has nothing whatever to do with the Amboina *Macaranga mappa* Muell.-Arg., which is so entirely distinct from *Macaranga grandifolia* (Blanco) Merr. that it must be placed in a different section of the genus. In vegetative characters, in its staminate inflorescence, and especially in its pistillate inflorescence, *Macaranga grandifolia* (Blanco) Merr. is totally different from *Macaranga mappa* Muell.-Arg. The whole description and the figure given by Pax and Hoffmann go with *Macaranga grandifolia* (Blanco) Merr., together with the synonyms *Macaranga porteana* André, *Mappa porteana* Wats., and *Croton grandifolius* Blanco.

**MACARANGA HISPIDA** (Blume) Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 990.

*Mappa hispida* Blume Bijdr. (1825) 624.

*Halecus rugosa* Rumph. Herb. Amb. 3: 198.

AMBOINA, Mahija, Robinson Pl. Rumph. Amb. 363, 364, August 12, 1913, in light forest at an altitude of 250 meters, locally known as *haleki* and as *bilang kinar*.

No previous reduction of *Halecus rugosa* Rumph. has been suggested. Rumphius's description agrees perfectly with the specimens cited above, which are at the same time apparently typical *Macaranga hispida* Muell.-Arg., which was originally described by Blume from Moluccan specimens. The Philippine material referred here is very much more pubescent than the Amboina specimens.

**MACARANGA TANARIUS** (Linn.) Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 997.

*Ricinus tanarius* Linn. in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 125, Syst. ed. 10 (1759) 1277, Sp. Pl. ed. 2 (1763) 1430 (type!).

*Mappa tanarius* Blume Bijdr. (1825) 624.

*Ricinus mappa* Roxb. Fl. Ind. ed. 2, 3 (1832) 690, non Linn.

*Tanarius minor alba* Rumph. Herb. Amb. 3: 190, t. 121.

*Tanarius minor rubra* Rumph. Herb. Amb. 3: 190.

AMBOINA, Hoenot, Robinson Pl. Rumph. Amb. 362, October 18, 1913, in wooded glens, altitude about 200 meters, locally known as *hunua*.

The Rumphian figure and description are the whole basis of *Ricinus tanarius* Linn. and are hence the type of the species. Most early authors considered it under the Linnean binomial.

*Ricinus tanarius* Linn., which in modern literature appears as *Macaranga tanarius* Muell.-Arg. Spanoghe referred *Tanarius minor* Rumph. to *Mappa glabra* Juss., which Pax and Hoffmann retain as a distinct species, *Macaranga glabra* (Juss.) Pax & Hoffm. It is to be noted that the Amboina specimen, cited above, which agrees closely with the Rumphian description and with the greatly reduced figure, is by no means identical with *Macaranga tanarius* Muell.-Arg. as currently interpreted. The leaves are larger, glabrous, the petioles longer, and the staminate inflorescences are lax, long peduncled, up to 30 cm wide, and including the peduncle about 40 cm long. It is typical *Macaranga tanarius* (Linn.) Muell.-Arg., and it seems very probable that a critical revision of the group must lead to the adoption of another specific name for the widely distributed form that appears in herbaria under the name *Macaranga tanarius* Muell.-Arg. Hasskarl, *Neue Schlüssel* (1886) 65, suggested that *Tanarius minor rubra* Rumph. might be the same as *Mappa denticulata* Blume=*Macaranga denticulata* Muell.-Arg., but the distribution of the latter precludes the correctness of this reduction. I consider it to be a color variant of *Macaranga tanarius* Muell.-Arg.

**MACARANGA INVOLUCRATA** (Roxb.) Baill. *Etud. Gén. Euphorb.* (1858) 432.

*Urtica involucrata* Roxb. *Hort. Beng.* (1814) 47, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 592.

*Halecus terrestris vulgaris* Rumph. *Herb. Amb.* 3: 197, t. 127.

*Halecus terrestris alba* Rumph. *Herb. Amb.* 3: 198, t. 127 bis.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb.* 365, 366, August 11, 1913, hillsides at an altitude of about 20 meters, the former with pistillate flowers and immature fruits, the latter with staminate flowers.

*Halecus terrestris* Rumph. was originally reduced by Linnaeus, with doubt, to *Croton lacciferum* Linn., in *Stickman Herb. Amb.* (1754) 14, *Amoen. Acad.* 4 (1759) 125, and following this reduction, was placed by Willdenow, *Sp. Pl.* 4 (1805) 590, under *Aleurites laccifera* Willd. Miquel, *Fl. Ind. Bat.* 1<sup>2</sup> (1859) 406, placed it, with doubt, under *Acalypha bracteata* Miq. The specimens cited above agree closely with the description and figure given by Rumphius and are, moreover, typical *Macaranga involucrata* Baill., a species known only from Amboina except for the plants cultivated in the botanic gardens at Calcutta and Buitenzorg.

As representing *Halecus terrestris alba* Rumph., I cite *Pl. Rumph. Amb.* 357, 358, from Amahoesoe and the town of Amboina, August, 1913, both with staminate flowers. The leaves are somewhat more pubescent and are less toothed than in the

two specimens cited above, yet they are apparently referable to the same species. The Rumphian figure is poor, but the short description applies closely to *Macaranga involucrata* Baill. Lamarck, *Encycl.* 2 (1786) 206, referred it, with doubt, to *Croton mauritianum* Lam.; while Miquel, *Fl. Ind. Bat.* 1<sup>2</sup> (1859) 385, thought that it might be *Claoxylon indicum* Hassk.

#### ACALYPHA Linnaeus

**ACALYPHA AMENTACEA** Roxb. *Fl. Ind. ed. 2, 3* (1832) 676.

*Acalypha stipulacea* Klotz. in *Nov. Act. Acad. Nat. Cur.* 19 (1843) Suppl. 1: 416.

*Acalypha amboynensis* Benth. in *Hook. Lond. Journ. Bot.* 2 (1843) 233.

*Achyranthes spiciflora* Burm. *Index Alt. Herb. Amb.* (1769) [5] (type!), non *Acalypha spiciflora* Burm. f.

*Cauda felis agrestis rubra* Rumph. *Herb. Amb.* 4: 84, t. 37, f. 1.

*Cauda felis agrestis alba* Rumph. *Herb. Amb.* 4: 84, t. 37, f. 2.

AMBOINA, *Robinson Pl. Rumph. Amb.* 353, 354, July 22, 1913, along river banks at low altitudes in the vicinity of the town of Amboina, locally known as *ekor kuching* and *ekor tusa*.

Apparently but a single species is represented by the two forms figured and described by Rumphius, and I consider both to be referable to *Acalypha amentacea* Roxb., the type of which was from the Moluccas. At the same time I do not see how the Philippine *Acalypha stipulacea* Klotz. can be distinguished specifically from the Amboina form, Klotzsch's species having been reported from as far to the southeast as New Guinea. *Acalypha amboynensis* Benth. and probably the Amboina specimen referred by Bentham to *Acalypha grandis* Benth. doubtless are referable here. It is to be noted, however, that J. Mueller reduced *Acalypha amentacea* Roxb. to *Acalypha fruticosa* Forsk., but the range of Forskål's species militates very greatly against the correctness of this reduction. *Cauda felis agrestis rubra* was reduced by Hasskarl, *Neue Schlüssel* (1866) 79, to *Acalypha grandis* Benth., and no other disposition of it has been suggested. *Cauda felis agrestis alba* has been considered by numerous authors, but with little uniformity of opinion. Burman f., *Fl. Ind.* (1768) 203, erroneously placed it under *Acalypha spiciflora* Burm. f.=*Cleidion spiciflorum* (Burm. f.) comb. nov. (*Cleidion javanicum* Blume!). Linnaeus, *Mant.* 2 (1771) 127, erroneously placed it under *Caturus spiciflorus* Linn., which is a synonym of *Acalypha hispida* Burm., in which reduction he was followed by a few authors. Retzius, *Obs.* 5 (1789) 30, placed it under *Acalypha betulina* Retz., a species based on Ceylon specimens collected by Koenig and a synonym of *Acalypha fruticosa* Forsk.:

and finally Kosteletzsky, Allg. Med. Pharm. Fl. 5 (1836) 1743, placed it under *Acalypha caturus* Blume.

**ACALYPHA HISPIDA** Burm. f. Fl. Ind. (1768) 303, t. 61, f. 1.

*Acalypha densiflora* Blume Bijdr. (1826) 628.

*Caturus spiciflorus* Linn. Mant. 1 (1767) 127, non *Acalypha spiciflora* Burm. f.

*Cauda felis domestica* Rumph. Herb. Amb. 4: 82, t. 36.

AMBOINA, Robinson Pl. Rumph. Amb. 570, without data, apparently from cultivated plants.

Burman f. described and figured *Acalypha hispida* from a Javan specimen, but reduced *Cauda felis domestica* Rumph. to his species which is certainly the correct disposition of it. Blume misinterpreted Burman's *Acalypha hispida* and re-described the same form as *Acalypha densiflora* Blume, reducing to it also *Cauda felis domestica* Rumph. The plant is widely cultivated for ornamental purposes in the Malayan region.

#### PLUKENETIA Linnaeus

**PLUKENETIA CORNICULATA** Sm. in Nov. Act. Soc. Sci. Upsal. 4 (1799) 4.

*Pterococcus glaberrimus* Hassk. in Flora 25 (1842) Beibl. 41.

*Hedrayostylus glaberrimus* Hassk. in Tijdschr. Nat. Wetensch. 10 (1840) 141.

*Hedrayostylus corniculatus* Hassk. Cat. Hort. Bot. Bogor. (1844) 234.

*Sajorium corniculatum* Dietr. Syn. Pl. 5 (1852) 331.

*Sajor volubilis* Rumph. Herb. Amb. 1: 194, t. 79, f. 2.

Not represented in our Amboina collections. *Sajor volubilis* Rumph. was originally reduced by Linnaeus to the American *Plukenetia volubilis* Linn., in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120, Sp. Pl. ed. 2 (1763) 1423, in which he was followed by Burman f., Lamarck, Spanoghe, and Murray. The form figured and described by Rumphius has been cited under all or most of the various synonyms listed above. It was cited by Willdenow, Sp. Pl. 4 (1805) 515, under *Plukenetia corniculata* Sm., and perhaps by Smith in the original description of the species, which I have not seen. *Sajor volubilis* Rumph. is doubtless correctly placed under *Plukenetia corniculata* Sm.

#### RICINUS Linnaeus

**RICINUS COMMUNIS** Linn. Sp. Pl. (1753) 1007.

*Ricinus albus domesticus* Rumph. Herb. Amb. 4: 92.

*Ricinus albus agrestis* Rumph. Herb. Amb. 4: 92.

*Ricinus ruber* Rumph. Herb. Amb. 4: 97, t. 41.

AMBOINA, Robinson Pl. Rumph. Amb. 337, 338, in waste places about Castle Victoria, town of Amboina, November 13, 1913, locally known as *jarak puti daun besaar* and *jarak mera daun kechil*.

The Rumphian descriptions apply to three forms of this polymorphous species. The reduction of *Ricinus ruber* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1276, Sp. Pl. ed. 2 (1763) 1430. The various forms described by Rumphius have been reduced by authors to *Ricinus lividus* Jacq., *R. viridis* Willd., *R. africanus* Mill., and *R. ruber* Miq. Fl. Ind. Bat. 1<sup>re</sup> (1858) 390; the last is not included in Index Kewensis; all are synonyms of *Ricinus communis* Linn.

#### ALEURITES Forster

**ALEURITES MOLUCCANA** (Linn.) Willd. Sp. Pl. 4 (1805) 590.

*Jatropha moluccana* Linn. Sp. Pl. (1753) 1006.

*Croton moluccanus* Lam. Encycl. 2 (1786) 207.

*Aleurites triloba* Forst. Char. Gen. (1776) 112.

*Juglans camirium* Lour. Fl. Cochinch. (1790) 573.

*Aleurites ambinux* Pers. Syn. 2 (1807) 587.

*Camirium* Rumph. Herb. Amb. 2: 180, t. 58.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb.* 332, October 8, 1913, cultivated, altitude about 175 meters, locally known as *kamiri*.

Lamarck seems to have been the first author to reduce *Camirium*, placing it under *Croton moluccanum* Lam., which as *Aleurites moluccana* Willd. is certainly the correct disposition of it. By various authors it has been referred to *Juglans camirium* Lour., *Aleurites triloba* Forst., and *A. ambinux* Pers.—all synonyms of *Aleurites moluccana* (Linn.) Willd.

#### JATROPHA Linnaeus

**JATROPHA CURCAS** Linn. Sp. Pl. (1753) 1006.

*Ricinus americanus* Rumph. Herb. Amb. 4: 95.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 333, September 16, 1913, along roadsides at low altitudes, locally known as *jarap*.

This reduction was first made by Hasskarl, Neue Schlüssel (1866) 81, and is certainly the correct disposition of the plant Rumphius described as *Ricinus americanus*.

#### MANIHOT Adanson

**MANIHOT UTILISSIMA** Pohl Pl. Bras. Ic. 1 (1827) 32, t. 24.

*Jatropha manihot* Linn. Sp. Pl. (1753) 1007.

*Yucca* Rumph. Herb. Amb. 5: 325, 361.

*Mandihocca* Rumph. Herb. Amb. 5: 361.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb.* 336, a roadside escape, altitude about 375 meters.

The reductions follow Hasskarl, Neue Schlüssel (1866) 128, 133, and are unquestionably correct.



## CODIAEUM \* Jussieu

**CODIAEUM VARIEGATUM** (Linn.) Blume Bijdr. (1825) 606.

*Croton variegatus* Linn. Sp. Pl. (1753) 1199 (type!).

*Codiaeum simplex* (chrysosticton) Rumph. Herb. Amb. 4: 65, t. 25.

AMBOINA. Waë and Soja, *Robinson Pl. Rumph. Amb. 348, 349*, October and November, 1913, cultivated and on coral hillsides at low altitudes, locally known as *kodiho*. Additional specimens, perhaps referable to one or the other of the numerous forms described by Rumphius are *Robinson Pl. Rumph. Amb. 343, 344, 345*, from cultivated plants, Soja, October 24, 1913, all sterile.

*Croton variegatus* Linn. is one of the few species published in the first edition of the *Species Plantarum* that were based entirely on Rumphius. It is typified by *Codiaeum chrysosticton* Rumph., Herb. Amb. 4: 65, t. 25. Here Linnaeus also reduced, as varieties, *Codiaeum taeniosum* Rumph., l. c. 68, t. 26, and *Codiaeum silvestre* Rumph., l. c. 69, t. 27, the latter, however, belonging with *Codiaeum bractiferum* Roxb. These reductions were repeated in the later writings of Linnaeus, *Stickman Herb. Amb. (1754) 16*, *Amoen. Acad. 4 (1759) 126*, *Syst. ed. 10 (1759) 1275*, *Sp. Pl. ed. 2 (1763) 1424*, and were generally accepted by later authors. Hasskarl, *Neue Schlüssel (1866) 76*, has reduced many of the numerous forms characterized by Rumphius to varieties of *Codiaeum variegatum* (Linn.) Blume, but the distinctions between the very numerous varieties and forms of this polymorphous species are vague and unsatisfactory. The forms characterized by Rumphius are as follows:

*Codiaeum chrysosticton medium.*

*Codiaeum chrysosticton latifolium.*

*Codiaeum chrysosticton angustifolium*

*Codiaeum chrysosticton medium rubrum.*

*Codiaeum chrysosticton rubro-maculatum.*

*Codiaeum erythrosticton parvifolium.*

*Codiaeum nigrum medium.*

*Codiaeum nigrum minus.*

*Codiaeum parvifolium viride.*

**CODIAEUM VARIEGATUM** (Linn.) Blume f. **TAENIOSUM** Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 1120.

*Codiaeum taeniosum* Rumph. Herb. Amb. 4: 68, t. 26, f. 1.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb. 346, 347*, October 24, 1913, cultivated, altitude about 300 meters.

A narrow-leaved form of *Codiaeum variegatum* (Linn.) Blume, originally placed by Linnaeus as var.  $\beta$  Sp. Pl. (1753) 1199. Rumphius describes two forms under *Codiaeum taeniosum*, *lu-*

\* Retained name, Vienna Code; *Phyllaurea* Lour. (1790) is older.

*teum* and *viride*, the latter, *t. 26, f. 2*, with crisped leaves=*Croton variegatum* var. *crispum* Muell.-Arg.

**CODIAEUM BRACITIFERUM** Roxb. Fl. Ind. ed. 2, 3 (1832) 680.

*Codiaeum brevistylum* Pax & K. Hoffm. in Engl. Pflanzenreich 47 (1911) 28.

*Codiaeum silvestre* Rumph. Herb. Amb. 4: 69, *t. 27*.

AMBOINA, Koesoe koesoe sereh, *Robinson Pl. Rumph. Amb. 340*, August 23, 1913, with staminate and pistillate flowers. Probably referable here are *Robinson Pl. Rumph. Amb. 341, 342*, from coral hillsides at Waë, November 28, 1913, both sterile, and one lacking the characteristic reduced "bracts" figured by Rumphius and described by Roxburgh.

*Codiaeum silvestre* Rumph. was originally reduced by Linnaeus to *Codiaeum variegatum* Linn. var.  $\gamma$  Sp. Pl. (1753) 1199, but represents an entirely distinct species, readily separated by its pubescent ovaries and its vegetative characters. The greatly reduced, bract-like leaf is very characteristic, but is present opposite only the uppermost leaves and apparently falls early. *Codiaeum bractiferum* Roxb. is not listed in Index Kewensis and was described as follows:

*C. bractiferum*. R. Shrubby. Leaves linear-oblong, smooth, entire. Racemes terminal, becoming lateral with an immense orbicular bract at the base. *Codiaeum silvestre* Rumph. Amb. IV. *t. 27*. A native of the Moluccas.

I have placed the recently described Amboinese *Codiaeum brevistylum* Pax & K. Hoffm. as a synonym, although in the description the characteristic, reduced, bract-like leaves are not mentioned, possibly because they had fallen from the specimens collected by Dolleschal.

#### ENDOSPERMUM Bentham

**ENDOSPERMUM MOLUCCANUM** (Teysm. & Binn.) Becc. Malesia 2 (1884) 38.

*Capellania moluccana* Teysm. & Binn. in Nat. Tijdschr. Ned. Ind. 29 (1866) 239.

*Arbor regis* Rumph. Herb. Amb. 2: 257, *t. 85*.

This species is not represented in our Amboina collections; however, it has been collected in Amboina by Dolleschal. Linnaeus originally referred *Arbor regis* Rumph., with doubt, to *Hernandia sonora* Linn., in Stickman Herb. Amb. (1754) 11, Amoen. Acad. 4 (1759) 122, thus: "85. *Arbor regis*=*Hernandia sonora* ? (sed fructus alienus.)." In this reduction he was followed by Burman f., Lamarck, Willdenow, Persoon, Henschel, Spanoghe, Dietrich, Miquel, and other authors. Beccari, Malesia 2 (1884) 38, first made the correct reduction of it to

*Endospermum moluccanum* (Teysm. & Binn.) Becc., the type of *Capellania moluccana* Teysm. & Binn. being from the Moluccas. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 45, thought that it was referable to *Tournefortia*.

## EXCOECARIA Linnaeus

**EXCOECARIA AGALLOCHA** Linn. Syst. ed 10 (1759) 1288, Amoen. Acad. 4 (1759) 122, Sp. Pl. ed. 2 (1763) 1451 (type!).

**Arbor excoecans** Rumph. Herb. Amb. 2: 237, t. 79 ♂, t. 80 ♀.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 335, October 29, 1913, along the seashore, locally known as *kayu matta buta*.

The Rumphian illustration and description are the whole basis of *Excoecaria agallocha* Linn. as originally published by Linnaeus. The reduction, certainly correct, has been accepted by all authors. The form briefly described by Rumphius as *Arbor excoecans* (II *variegata*), Herb. Amb. 2: 239, can scarcely be other than this species.

## HOMALANTHUS Jussieu

**HOMALANTHUS POPULNEUS** (Geisel.) Pax in Engl. & Prantl Nat. Pflanzenfam. 3<sup>e</sup> (1890) 96, f. 60.

*Stillingia populnea* Geisel. Croton. Monogr. (1807) 80.

*Carumbium populneum* Muell.-Arg. in DC. Prodr. 15<sup>2</sup> (1866) 1144.

**Frutex excoecans** Rumph. Herb. Amb. 4: 130, t. 65.

AMBOINA, Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 329, October 3, 1913, in light forests, locally known as *daun matta bali*.

Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 85, reduced *Frutex excoecans* Rumph. to *Carumbium populifolium* Reinw., which is a synonym of *Homalanthus populneus* (Geisel.) Pax. The Amboina form appears to be typical *Homalanthus populneus* Pax [that is, var. *genuinus* Pax in Engl. Pflanzenreich 52 (1912) 46], which extends from the Malay Peninsula to Java, Sumatra, Borneo, and Celebes.

## PIMELEODENDRON Hasskarl

**PIMELEODENDRON AMBOINICUM** Hassk. Versl. en Med. Akad. Amsterdam 4 (1855) 140.

*Carumbium amboinicum* Miq. Fl. Ind. Bat. 1<sup>2</sup> (1859) 413.

**Arbor pinguis** Rumph. Herb. Amb. 2: 249, t. 83.

AMBOINA, Hoenot, *Robinson Pl. Rumph. Amb.* 174, October 13, 1913, at low altitudes, locally known as *mamina*.

*Arbor pinguis* Rumph. was first correctly placed by Hasskarl as a synonym of *Pimeleodendron amboinicum* Hassk. Desrouss, in Lam. Encycl. 3 (1791) 693, thought that it might belong in

the *Sapotaceae*, while Henschel, Vita Rumph. (1833) 152, thought that it might be *Cambogia gutta* Linn. The species is known only from Amboina.

#### SAPIUM P. Browne

**SAPIUM INDICUM** Willd. Sp. Pl. 4 (1805) 572.

*Ichthyoctonos litorea* Rumph. Herb. Amb. 3: 213, t. 138.

This species is not represented in our Amboina collections, but I reduce the Rumphian species to *Sapium indicum* Willd. with great confidence that this is the correct disposition of it. Baillon, Etud. Gén. Euphorb. (1858) 518, suggested that it was a *Stillingia*; while Hasskarl, Neue Schlüssel (1866) 68, reduced it to *Excoecaria virgata* Zoll. & Mor.=*Sapium virgatum* Hook. f., a species very closely allied to *Sapium indicum* Willd. *Sapium virgatum* Hook. f. is confined to Java, according to Pax & K. Hoffmann, in Engl. Pflanzenreich 52 (1912) 250, while *Sapium indicum* Willd. extends from India to New Guinea. The figure given by Rumphius is fairly good, while the description applies to *Sapium indicum* Willd. in all respects.

#### EUPHORBIA Linnaeus

**EUPHORBIA HIRTA** Linn. Sp. Pl. (1753) 454.

*Euphorbia pilulifera* Linn. Sp. Pl. (1753) 454.

*Euphorbia capitata* Lam. Encycl. 2 (1788) 422.

*Esula esculenta* Rumph. Herb. Amb. 6: 54, t. 23, f. 2.

AMBOINA, Hitoe lama, Robinson Pl. Rumph. Amb. 352, October 8, 1913. in cultivated ground, altitude about 150 meters; also represented by *Rel. Robins.* 2497, from Boeton Island, July 13, 1913.

*Esula esculenta* Rumph. was first reduced by Linnaeus to *Euphorbia hirta* Linn., in Stickman Herb. Amb. (1754) 26. Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 1048, Sp. Pl. ed. 2 (1762) 651, which is certainly the correct disposition of it, and in which he was followed by many authors. In recent literature the species appears chiefly as *Euphorbia pilulifera* Linn., which is a synonym of *Euphorbia hirta* Linn., the latter having page priority. Lamarck referred it, with doubt, to *Euphorbia capitata* Lam., a synonym of *Euphorbia hirta* Linn.

**EUPHORBIA NERIIFOLIA** Linn. Sp. Pl. (1753) 451.

*Euphorbia ligularia* Roxb. Hort. Beng. (1814) 36, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 465.

*Ligularia lactea* Rumph. Herb. Amb. 4: 88, t. 40.

*Ligularia minor* Rumph. Herb. Amb. 4: 90.

This species is not represented in our Amboina collections. This reduction of *Ligularia lactea* Rumph. was first made by

Linnaeus, in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126, Sp. Pl. ed. 2 (1762) 648, and is apparently the correct disposition of it. *Euphorbia ligularia* Roxb. was described from Bengal specimens, to which *Ligularia* Rumph. was reduced. Hasskarl, Neue Schlüssel (1866) 81, referred *Ligularia minor* Rumph. to *Euphorbia edulis* Lour., but the form described by Rumphius was probably only a somewhat reduced one of *Euphorbia neriifolia*.

*Ligularia lactea* e Java, briefly described by Rumphius, Herb. Amb. 4: 88, was thought by Hasskarl, Neue Schlüssel (1866) 80, to be possibly the same as *Euphorbia splendens* Boj., but this reduction is probably incorrect.

**EUPHORBIA TIRUCALLI** Linn. Sp. Pl. (1753) 452.

*Ossifraga lactea* Rumph. Herb. Amb. 7: 62, t. 29.

This species is not represented in our Amboina collections. *Ossifraga lactea* was first reduced to *Euphorbia tirucalli* Linn. by Linnaeus, in Amoen. Acad. 4 (1759) 137, Syst. ed. 10 (1759) 1047, Sp. Pl. ed. 2 (1762) 649. This is manifestly the correct disposition of it and has been accepted by all authors who have had occasion to cite the Rumphian illustration.

**EUPHORBIAEAE** indet.

*Involucrum cusci* Rumph. Herb. Amb. 4: 73.

The description, while rather short, is sufficiently definite to indicate that a euphorbiaceous plant is intended. I am, however, unable to refer it to its proper genus from the description alone. Hasskarl, Neue Schlüssel (1866) 77, suspects it to be an *Elateriospermum* or a species of some allied genus.

## ANACARDIACEAE

### MANGIFERA Linnaeus

**MANGIFERA FOETIDA** Lour. Fl. Cochinch. (1790) 160.

*Manga foetida* Rumph. Herb. Amb. 1: 98, t. 28.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb. 126*, beside clearings, altitude about 175 meters, locally known as *ambachan*, *bachan*, and *bichang*.

*Manga foetida* Rumph. was reduced by Loureiro in the original description of *Mangifera foetida* Lour. and is undoubtedly the form that Loureiro described from Cochin-China material, as the species is widely distributed in the Indo-Malayan region in cultivation. All authors have followed Loureiro in this reduction.

**MANGIFERA CAESIA** Jack in Roxb. Fl. Ind. 2 (1824) 441.

*Mangifera kemanga* Blume Mus. Bot. 1 (1850) 202.

*Manga foetida* II Rumph. Herb. Amb. 1: 99.

This species is not represented in our Amboina collections. The reduction follows Blume, who cites *Mangifera foetida* II under the native name *wani* in the original description of *Mangifera kemanga*. It should be also compared with *Mangifera odorata* Griff.

**MANGIFERA UTANA** Ham. in Mem. Wern. Soc. 5<sup>2</sup> (1826) 326 (type!).

*Mangifera membranacea* Blume Mus. Bot. 1 (1850) 195 (type?).

*Mangifera taipan* Ham. ex Miq. Fl. Ind. Bat. 1<sup>2</sup> (1858) 631.

*Manga silvestris* I Rumph. Herb. Amb. 1: 97, t. 27.

Nothing resembling this species occurs in our Amboina collections. The Rumphian figure and description are the whole basis of *Mangifera utana* Ham., a species properly published, but overlooked by the compilers of Index Kewensis, in which it is not listed. *Mangifera membranacea* Blume is based, at least in part, on the same Rumphian description and figure; like *Mangifera utana* Ham. it is a species of very doubtful status, placed by Engler, in DC. Monog. Phan. 4 (1883) 215, under the heading "species omnino incertae." The figure very closely resembles the Philippine form, *Mangifera monandra* Merr.

**MANGIFERA INDICA** Linn. Sp. Pl. (1753) 200.

*Manga domestica* Rumph. Herb. Amb. 1: 93, t. 25, 26.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 125, October 29, 1913, locally known as *manga*; town of Amboina, Pl. Rumph. Amb. 123, 124, August 24, 1913, locally known as *pau* and *manga pau*.

Linnaeus originally reduced both *tt.* 25 and 26 to *Mangifera indica* Linn., in Stickman Herb. Amb. (1754) 7, Amoen. Acad. 4 (1759) 119; and practically all authors have followed him, at least in the reduction of *Manga domestica* as represented by *t.* 25. The form represented by *t.* 26 is almost certainly nothing but *Mangifera indica*; at least no characters are indicated by which it can be distinguished. It has been cited by Blume and by Miquel as *Mangifera altissima* Blanco, a very characteristic species that has very little in common with the figure given by Rumphius; whatever else *t.* 26 may represent, it is certainly not *Mangifera altissima* Blanco.

Rumphius describes five forms of *Manga domestica*, all of which, with one exception, are surely referable to *Mangifera indica* Linn. The exception is *Arbor mangifera V minor*, which Blume has reduced to *Mangifera minor* Blume, Mus. Bot. 1

(1850) 198, his description being based on specimens from Celebes.

**MANGIFERA MINOR** Blume Mus. Bot. 1 (1850) 198.

*Manga domestica minor* Rumph. Herb. Amb. 1: 94.

*Mangifera minor* Blume was based on specimens from Celebes, and Blume reduced the Rumphian species as a synonym in the original description of the species. The species is a valid one, placed by Engler near *Mangifera longipes* Griff.; DC. Monog. Phan. 4 (1883) 202. Blume was undoubtedly correct in reducing here *Manga minor* Rumph.

**MANGIFERA LAURINA** Blume Mus. Bot. 1 (1850) 195.

*Manga simiarum* Rumph. Herb. Amb. 1: 94.

The reduction follows Blume, who placed the Rumphian species as a synonym of *Mangifera laurina* Blume in the original description of the species.

**MANGIFERA TAIPAN** Ham. in Mem. Wern. Soc. 5<sup>2</sup> (1826) 326 (type!).

*Mangifera silvestris altera* Rumph. Herb. Amb. 1: 97.

This species is based wholly on Rumphius's description and is of entirely doubtful status. Engler, in DC. Monog. Phan. 4 (1883) 215, reduces it to *Mangifera membranacea* Blume, Mus. Bot. 1 (1850) 195, following Blume, but Blume's species is in turn one of entirely doubtful status. Hamilton's name is the older and should be maintained if future investigations show that the species is a valid one.

**MANGIFERA RUMPHII** Pierre Fl. Forest. Cochinch. 4 (1897) t. 364, f. E, excl. syn. Blanco.

*Pauw* Rumph. Herb. Amb. 7: 18, t. 11 (incl. *I maxima*, *II media*, *III minima*).

The three forms described by Rumphius under the name *Pauw*, were referred by Hasskarl to *Mangifera altissima* Blanco, but the descriptions and the figure pertain to a totally different species, which Pierre has described from Banda specimens as *Mangifera rumphii* Pierre.

#### GLUTA Linnaeus

**GLUTA BENGHAS** Linn. Mant. 2 (1771) 293.

*Terminalia vernix* Lam. Encycl. 1 (1783) 350 (type!).

*Stagmaria verniciflua* Jack. Malay Miscel. 3 (1823) 12.

*Arbor vernicis* Rumph. Herb. Amb. 2: 259, t. 86.

*Gluta benghas* Linn. was based on Javan specimens, perhaps *benghas* being a typographical error, as the specific name is taken from its native name *rengas*. *Arbor vernicis* Rumph.

probably includes more than *Gluta benghas* Linn., but the figure and the description, at least for the most part, apparently belong here. Loureiro, Fl. Cochinch. (1790) 587, discusses it under *Vernicia montana* Lour., but does not refer it to this species, which is supposed to be *Aleurites moluccana* Willd. It is the type and whole basis of *Terminalia vernix* Lam. Hasskarl seems to have been the first author to reduce it to *Gluta benghas* Linn., Flora (1844) 619, in which he was followed by Endlicher, Blume, and Miquel, and, very generally, by recent authors. Miquel also discusses it following *Terminalia angustifolia* Jacq., Fl. Ind. Bat. 1<sup>1</sup> (1855) 599, overlooking the fact that *Terminalia vernix* Lam., which he considered to be a doubtful species, was based on *Arbor vernicis* Rumph., which in the same work, 1<sup>2</sup> (1858) 624, he correctly placed under *Gluta benghas* Linn.

#### SPONDIAS Linnaeus

**SPONDIAS DULCIS** Forst. Prodr. (1786) 34.

*Evia acida* Blume Mus. Bot. 1 (1850) 234.

*Spondias acida* Blume ex Steud. Nomencl. ed. 2, 2 (1841) 625.

*Spondias dulcis* Forst. var. *acida* Engl. in DC. Monog. Phan. 4 (1883) 247.

*Condondum* Rumph. Herb. Amb. 1: 161, t. 60.

This is not represented in our Amboina collections, but the species is known to occur in the island. I have followed Blume in this reduction, as it is very probable that he was correct in referring *Condondum* Rumph. to *Evia acida* Blume. Engler considers that Blume's *Evia acida* is a variety of *Spondias dulcis* Forst. Linnaeus originally reduced *Condondum* to *Chrysobalanus icaco* Linn., in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 119, a pure error on his part, the reduction being abandoned in his later writings. Lamarck, Encycl. 3 (1791) 697, followed by Hamilton, Mem. Wern. Soc. 5<sup>2</sup> (1826) 358, thought that it was *Mangifera pinnata* Linn. f., which was figured by Rumphius under the name *Condondum malaccense*, t. 61. *Mangifera pinnata* Lam., non Linn. f., is *Sorindeia madagascariensis* Thouars.

**SPONDIAS PINNATA** (Linn. f.) Kurz in Pegu Report (1875) A 44.

*Mangifera pinnata* Linn. f. Suppl. (1781) 156.

*Evia amara* Commers. ex Blume Mus. Bot. 1 (1850) 234.

*Spondias mangifera* Willd. Sp. Pl. 2 (1799) 751.

*Spondias amara* Lam. Encycl. 4 (1797) 261.

*Condondum malaccense* Rumph. Herb. Amb. 1: 162, t. 61.

This is not represented in our Amboina collections. The reduction, apparently the correct disposition of *Condondum*



*malaccense* Rumph., follows Blume and other authors. Blume makes the Rumphian figure and description the type of *Evia amara* Commers. var. *tuberculosa* Blume; and Engler, recognizing the variety, transfers it to *Spondias mangifera* Willd. var. *tuberculosa* Blume. The form described and figured, however, is probably nothing but typical *Spondias pinnata* (Linn. f.) Kurz.

#### DRACONTOMELUM Blume

DRACONTOMELUM MANGIFERUM Blume Mus. Bot. 1 (1850) 231.

*Poupartia mangifera* Blume Bijdr. (1826) 1160, excl. syn.

*Pomum draconum* Rumph. Herb. Amb. 1: 157, t. 58.

AMBOINA, Kaju poeti, *Robinson Pl. Rumph. Amb.* 127, October 24, 1913, in light woods, altitude about 200 meters, locally known as *bua rau*.

Hamilton, Mem. Wern. Soc. 5<sup>2</sup> (1828) 358, thought *Pomum draconum* Rumph. to be "pretty clearly a *Spondias*," but Blume, Mus. Bot. 1 (1850) 231, referred it to *Dracontomelum mangiferum* Blume, which is apparently the correct disposition of it, and one that has been accepted by subsequent authors, including Walpers, Miquel, and Engler. The species is widely distributed in the Malay Archipelago.

DRACONTOMELUM SYLVESTRE Blume Mus. Bot. 1 (1850) 231.

*Pomum draconum sylvestre* Rumph. Herb. Amb. 1: 159, t. 59.

This is not represented in our Amboina collections. The reduction was made by Blume in the original description of *Dracontomelum sylvestre* and is probably the correct disposition of it. According to Blume the species is widely distributed in the Malay Archipelago, but in the most recent monograph of the group Engler cites specimens from Borneo only.

#### ANACARDIUM Linnaeus

ANACARDIUM OCCIDENTALE Linn. Sp. Pl. (1753) 383.

*Cassuvium pomiferum* Lam. Encycl. 1 (1783) 22.

*Cassuvium* Rumph. Herb. Amb. 1: 177, t. 69.

The common cashew is not represented in our Amboina collections, but is very generally cultivated throughout the Malayan region. *Cassuvium* Rumph. was originally reduced by Linnaeus to *Anacardium occidentale* Linn., in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120, Syst. ed. 10 (1759) 1019, Sp. Pl. ed. 2 (1762) 548, which reduction is certainly correct and has been very generally followed by subsequent authors. Lamarck, however, redescribed the same species as *Cassuvium pomiferum* Lam., referring here *Cassuvium* Rumph., from which he took the generic name.

## SEMECARPUS Linnaeus f.

SEMECARPUS CASSUVIUM Roxb. Hort. Beng. (1814) 32 (type!); Spreng. Syst. 1 (1825) 936; Roxb. Fl. Ind. ed. 2, 2 (1832) 85.

*Anacardium longifolium* Lam. Encycl. 1 (1763) 139, p. p., quoad syn. Rumph.

*Cassuvium silvestre* Rumph. Herb. Amb. 1: 179, t. 70.

AMBOINA, Paso, Way tommo, and near the town of Amboina, Robinson Pl. Rumph. Amb. 119, 120, 121, 122, October, November, 1913, in thickets and light woods, sea level to an altitude of 20 meters, locally known as *saku*.

*Cassuvium silvestre* Rumph. is the whole basis of *Semecarpus cassuvium* Roxb. as originally published by him, Hort. Beng. (1814) 32, by citation.\* Sprengel apparently based his short description partly, if not entirely, on *Anacardium longifolium* Lam., which is the same as *Semecarpus cassuvium* Roxb. only in small part. Roxburgh's actual description, as published in 1832, was based on specimens originating in the Moluccas and cultivated in the botanic garden at Calcutta.

SEMECARPUS FORSTENII Blume Mus. Bot. 1 (1850) 188.

*Cassuvium silvestre* s. *Lau Lassi* (e Ternate) Rumph. Herb. Amb. 1: 180.

The reduction follows Blume, who so reduced the Ternate form mentioned by Rumphius, in the original description of *Semecarpus forstenii* Blume, which was based on actual specimens collected in Ternate by Forsten.

## CELASTRACEAE

## EUONYMUS Linnaeus

EUONYMUS sp.?

*Caju lape lape* Rumph. Herb. Amb. 3: 78, t. 50.

Nothing resembling the form figured by Rumphius occurs in our Amboina collections. The figure looks suspiciously like certain species of *Euonymus*, while the description applies fairly closely. Blume, Rumphia 3 (1837) 167, notes that it cannot be a *Mischocarpus*; Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1858) 567, mentions it under *Cupania fuscescens* Miq. = *Mischocarpus fuscescens* Blume; while Hasskarl, Neue Schlüssel, (1866) 53, quotes Teysmann's opinion that it was an *Elodea* (*Tridesmis*) = *Cratogeomys*, which is an impossible disposition of it. It may possibly be a sapindaceous plant, but the probabilities are that it is a poorly described and figured species of *Euonymus*.

\* See C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 413, 418.

## PERROTTETIA Humbolt, Bonpland, and Kunth

**PERROTTETIA MOLUCCANA** (Blume) Loesen. in Engl. & Prantl. Nat. Pflanzenfam. 3<sup>5</sup> (1892) 220.

*Caryospermum moluccanum* Blume Mus. Bot. 1 (1850) 176.

*Vertifolia rubra* Rumph. Herb. Amb. 3: 100, t. 67.

AMBOINA, Hitoe messen, Mahija, and Lateri, *Robinson Pl. Rumph. Amb.* 157, 160, 601, August and November, 1913, in forests, altitude 100 to 250 meters.

No previous reduction of *Vertifolia rubra* Rumph. has been suggested other than Hasskarl's tentative reference of it to the *Euphorbiaceae*. The specimens cited above agree perfectly with the description and very well with the figure, the fault in the figure being that the flowers are relatively greatly enlarged. Hasskarl was uncertain to which description, *Vertifolia alba* or *Vertifolia rubra*, the figure pertained, as Rumphius does not indicate which one he intended it for. The descriptions pertain to two entirely different plants, of different genera, and probably of different families. The Amboina material shows definitely that the figure belongs with *Vertifolia rubra* Rumph. It is of interest to note that the species is the type of the genus *Caryospermum* and that Blume's material was from Amboina.

## ICACINACEAE

## CARDIOPTERYX Wallich

**CARDIOPTERYX MOLUCCANA** Blume Rumphia 3 (1847) 207.

*Olus sanguinis* Rumph. Herb. Amb. 5: 482, t. 180.

This is not represented in our Amboina collections. *Olus sanguinis* Rumph. was originally reduced by Linnaeus, through error, to *Dioscorea sativa* Linn., in Stickman Herb. Amb. (1754) 25, Amoen. Acad. 4 (1759) 133, in which he was followed by a number of authors. It has also been referred to *Dioscorea cliffortiana* Lam. and to *D. deltoidea* Wall. Blume placed it in *Cardiopteryx* (often spelled *Cardiopteris*) in the original description of *Cardiopteryx moluccana* Blume, which is manifestly the correct disposition of it.

## STEMONURUS Blume

**STEMONURUS** sp.

*Fructus bobae* Rumph. Herb. Amb. 3: 166, t. 105.

Nothing resembling this form is represented in our Amboina collections. The figure is an excellent one and presents an icacinaceous plant, undoubtedly of the genus *Stemonurus*. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 62, placed it in *Platea*, another genus of the same family.

## SAPINDACEAE \*

## CARDIOSPERMUM Linnaeus

CARDIOSPERMUM HALICACABUM Linn. Sp. Pl. (1753) 366.

*Halicacabus peregrinus* Rumph. Herb. Amb. 6: 61, t. 24, f. 2.

This common and well-known species is not represented in our Amboina collections. The reduction of the Rumphian *Halicacabus peregrinus* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 1007, Sp. Pl. ed. 2 (1762) 525, which has been followed by all succeeding authors. The exact form figured by Rumphius is apparently *Cardiospermum halicacabum* Linn. var. *microcarpum* Blume.

## ALLOPHYLUS Linnaeus

ALLOPHYLUS TIMORENSIS (DC.) Blume Rumphia 3 (1847) 130 (emend. Radlk.).

*Schmidelia timorensis* DC. Prodr. 1 (1824) 611.*Ampacus litorea prima* Rumph. Herb. Amb. 2: 188.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb. 53*, August 8, 1913, along the beach, with the doubtful native names *biking ubat* and *kaya besi*.

The position of this form, as described by Rumphius, has not previously been indicated, but *Ampacus litorea prima* is unquestionably identical with *Allophylus timorensis* (DC.) Blume.

ALLOPHYLUS TERNATUS (Forst.) Radlk. in Engl. & Prantl Nat. Pflanzenfam. 3<sup>5</sup> (1895) 313.*Aporetica ternata* Forst. Char. Gen. (1776) 132.*Allophylus amboinensis* Blume Rumphia 3 (1847) 129.*Ampacus litorea (angustifolia) minor* Rumph. Herb. Amb. 2: 189.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb. 52*, September 18, 1913, along the beach. Another form of the same species is represented by *Rel. Robins. 1603*, from Paso, Amboina, Oct. 29, 1913, with elongated racemes, approaching *Allophylus leptococcus* Blume.

Blume, Rumphia 3 (1847) 129, referred *Ampacus litorea (angustifolia) minor* to his *Allophylus amboinensis*, which is an exact synonym of *Allophylus ternatus* (Forst.) Radlk. Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1859) 575, referred it to *Allophylus timorensis* (DC.) Blume, but *Ampacus litorea prima* Rumph. is manifestly *Allophylus timorensis* Blume, while the form from Leytimor is surely *A. ternatus* Radlk. (*A. amboinensis* Blume).

It is to be noted that *Ampacus angustifolius* Rumph., Herb.

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\* I am indebted to Dr. L. Radlkofer for the identifications of the specimens cited in this family.

Amb. 2: 188, t. 62, as described and figured, under which the two species discussed above are briefly described, is no *Allophylus*, but is *Evodia amboinensis* Merr. (*Evodia triphylla* auct. plur., non DC.) (see p. 290).

## SAPINDUS Linnaeus

SAPINDUS RARAK DC. Prodr. 1 (1824) 608.

*Dittelasma rarak* Hook. f. in Benth. & Hook. f. Gen. Pl. 1 (1862) 395.

*Saponaria* Rumph. Herb. Amb. 2: 134.

This is not represented in our Amboina collections, but *Saponaria* is unquestionably the same as *Sapindus rarak* DC., which was based in part on Rumphius and in part on a Javan specimen. Rumphius notes that the plant was abundant in Java, but occurred in Amboina only as an introduced one. Burman f., Fl. Ind. (1768) 91, referred it to *Sapindus saponaria* Linn., in which he was followed by Loureiro, Fl. Cochinch. (1790) 238, but *Sapindus saponaria* Linn. is a species entirely distinct from *S. rarak* DC.

## LEPISANTHES Blume

LEPISANTHES sp.?

*Arbor palorum alba parvifolia* Rumph. Herb. Amb. 3: 98, t. 65 (excl. f. A.).

The form figured and described by Rumphius is of doubtful status. Poiret, in Lam. Encycl. Suppl. 3 (1813) 479, thought that it might be *Pometia pinnata* Forst., which is certainly incorrect. De Candolle, Prodr. 1 (1824) 615, erroneously identified it as *Stadmannia sideroxyton* DC. Blume, Rumphia 3 (1837-47) 149, thought that it might be the same as *Scorodendron pallens* Blume=*Lepisanthes pallens* Radlk., which was described from Timor specimens. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 55, placed it under *Irine*=*Irina*=*Pometia*, where it certainly does not belong. If Blume's surmise that it is identical with *Scorodendron pallens* is correct, it is strange that Rumphius did not mention the peculiar onion-like odor that is characteristic of Blume's species.

## SCHLEICHERA Willdenow

SCHLEICHERA OLEOSA (Lour.) comb. nov.

*Pistacia oleosa* Lour. Fl. Cochinch. (1790) 615.

*Schleichera trijuga* Willd. Sp. Pl. 4 (1805) 1096.

*Cussambium spinosum* Ham. ex Henschel Vita Rumph. (1833) 143 (type!).

*Cussambium* Rumph. Herb. Amb. 1: 154, t. 57.

This species is not represented in our Amboina collections, but

*Cussambium*, although poorly figured by Rumphius, is certainly referable to this widely distributed Indo-Malayan species. It was first reduced by Loureiro, Fl. Cochinch. (1790) 615, to his *Pistacia oleosa*, and the plant he described from specimens cultivated in Cochin-China is apparently identical with *Schleichera trijuga* Willd.; at any rate it is no *Pistacia*. Accordingly, Loureiro's specific name, being the older, is here adopted. The reference of *Cussambium* to *Schleichera trijuga* Willd. was first made by Blume, Rumphia 3 (1847) 147, who also cites *Pistacia oleosa* Lour. as a synonym. *Cussambium spinosum* Ham. is typified by the Rumphian plate and description.

#### EUPHORIA Commerson

**EUPHORIA LONGANA** Lam. Encycl. 3 (1791) 574.

*Nephelium longana* Cambess. in Mém. Mus. 1818, 1: 274.  
Linkeng Rumph. Herb. Amb. 1: 157.

This Chinese species is briefly mentioned by Rumphius, who discusses it under the Chinese name *linkeng*. The material he had was unquestionably *Euphoria longana* Lam.

#### CUBILIA Blume

**CUBILIA BLANCOI** Blume Rumphia 2 (1849) 101.

*Euphoria cubili* Blanco Fl. Filip. (1837) 287.

*Cubilia rumphii* Blume l. c. 101; Koord. in Ic. Bogor. 1 (1904) 51, t. 92, 93.

*Boa massy* Rumph. Herb. Amb. 7: 5, t. 3.

This species is not represented in our Amboina collections, but is now known from a number of localities in the Philippines (Luzon to Mindanao), from Buru, and from Celebes. The reduction was first made by Blume, in the original publication of the genus cited above, but he recognized two species, the first *Cubilia blancoi*, the second *C. rumphii*; it is very apparent that the two are identical, and that, so far as material at present available shows, the genus *Cubilia* is monotypic and is confined to the Philippines and the Moluccas. Blume had no Philippine material and interpreted *Euphoria cubili* Blanco solely from Blanco's description. Doctor Radlkofer, under date of July 5, 1904, in discussing the identity of certain Philippine specimens with *Cubilia blancoi* and *C. rumphii*, writes as follows:

Your Philippine plant seems to be quite identical with the Celebes one [coll. Koorders] and so *Cubilia blancoi* and *C. rumphii* will fall together, and the latter must become a synonym of the former.

The differences indicated by Blume in the descriptions of what

he took to be two species are certainly due only to translations of Blanco's descriptive terms in indicating the fruit and leaf characters.

#### POMETIA Forster

POMETIA PINNATA Forst. Char. Gen. (1776) 110.

*Irina glabra* Blume Bijdr. (1825) 230.

*Dabanus* (incl. *Dawan batu*, *Dawan mera*, *Dawan puti*) Rumph. Herb. Amb. 3: 31, 32, *tt.* 16, 17.

AMBOINA, Negri lama, *Robinson Pl. Rumph. Amb.* 2, September 8, 1913, on river banks at an altitude of about 25 meters, locally known as *tauwan itam*; Kati-kati, *Robinson Pl. Rumph. Amb.* 3, October 7, 1913, in light forests, altitude about 90 meters.

The reduction of *Dabanus* of Rumphius to *Irina glabra* Blume was made by Blume, *Rumphia* 3 (1847) 114; that is, *Dawan batu* Rumph. Herb. Amb. 3: 31, *t.* 17, to *Irina glabra* var. *solida* Blume and *Dawan mera* Rumph. Herb. Amb. 3: 32 to *Irina glabra* var. *rubra* Blume. *Irina glabra* Blume is a synonym of *Pometia pinnata* Forst. All three forms indicated by Rumphius are apparently referable to the widely distributed and variable *Pometia pinnata* Forst. Plate 16 represents a fruiting specimen and plate 17 a flowering specimen, the latter distinctly characteristic, the former rather crude, yet unmistakably a *Pometia*.

#### JAGERA Blume

JAGERA SERRATA (Roxb.) Radlk. in Sitzb. Math.-Phys. Acad. Muench. 8 (1878) 303.

*Sapindus serratus* Roxb. Hort. Beng. (1814) 88 *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 284.

*Jagera speciosa* Blume *Rumphia* 3 (1847) 155.

*Papaja silvestris minor* Rumph. Herb. Amb. 1: 150, *t.* 53, *f.* 2.

This species is not represented in our Amboina collections. Blume makes this reduction in the original description of *Jagera speciosa*, which is probably the correct disposition of *Papaja silvestris minor* Rumph.

#### MISCHOCARPUS Blume

MISCHOCARPUS FUSCESCENS Blume *Rumphia* 3 (1837-47) 169.

*Arbor palorum alba latifolia* Rumph. Herb. Amb. 3: 99, *t.* 65, *quoad f.* 4.

This may or may not prove to be the correct disposition of the form that Rumphius described, the reduction following Miquel's suggestion. It is at least a representative of the *Sapindaceae*.

## DODONAEA Linnaeus

DODONAEA VISCOSA (Linn.) Jacq. Enum. Pl. Carib. (1760) 19.

*Ptelea viscosa* Linn. Sp. Pl. (1753) 118.

*Caryophyllaster litoreus* Rumph. Herb. Amb. 1: t. 50.

AMBOINA, Tandjong martafrons, *Robinson Pl. Rumph. Amb.* 1, October 16, 1913, along the beach, locally known as *chenki laut*. The exact form, as determined by Doctor Radlkofer, is *Dodonaea viscosa* Jacq. var. *vulgaris* Benth., forma *repanda* Radlk.

The reduction of *Caryophyllus litoreus* to *Ptelea viscosa* Linn. was first made by Linnaeus, in *Stickman Herb. Amb.* (1754) 17, *Amoen. Acad.* 4 (1759) 127, *Syst. ed.* 10 (1759) 898, *Sp. Pl. ed.* 2 (1762) 173, and transferred to *Dodonaea* as *D. viscosa* Linn., *Mant.* 2 (1771) 228, eleven years after Jacquin made the same transfer. Other names given by Hasskarl, *Neue Schlüssel* (1866) 83, are *Dodonaea burmanniana* DC., *D. dioica* Roxb., *D. triquetra* Andr., and *D. angustifolia* Blanco, all of which are apparently synonyms of *Dodonaea viscosa* Jacq.

## HARPULLIA Roxburgh

HARPULLIA ARBOREA (Blanco) Radlk. in *Sitzb. Math.-Phys. Akad. Muench.* 16 (1886) 404.

*Ptelea arborea* Blanco Fl. Filip. (1837) 63.

*Metrosideros molucca fungosa* Rumph. Herb. Amb. 3: 25.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb.* 4, November 4, 1913, in forests at an altitude of about 50 meters, locally known as *samar ayer*. A form with larger leaflets, and, for the species, rather large fruits, is represented by *Rel. Robins. 1601*, from Hitoe messen, October 10, 1913, growing on forested limestone hills at an altitude of about 150 meters.

The identification has been made chiefly from the native name cited by Rumphius, that is, *samar ayer*, which also appears on one of the specimens cited above. The description given by Rumphius is entirely inadequate to warrant an identification of the form from it alone. It is to be noted, however, that the other two species described under the heading *Metrosideros molucca* by Rumphius have nothing to do with *Harpullia*, but one is *Homalium foetidum* Benth. and the other is indeterminable.

## BALSAMINACEAE

## IMPATIENS Linnaeus

IMPATIENS BALSAMINA Linn. Sp. Pl. (1753) 938.

*Lacca herba* Rumph. Herb. Amb. 5: 256, t. 90.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 70, September 27, 1913.

*Lacca herba* was reduced to *Impatiens balsamina* Linn. by Linnaeus, in *Stickman Herb. Amb.* (1754) 21, *Amoen. Acad.* 4



(1759) 130, Syst. ed. 10 (1759) 1239, Sp. Pl. ed. 2 (1763) 1328, which is certainly the correct disposition of it, and which has been very generally followed by later authors. I consider that all of the forms indicated by Rumphius, *I coccinea*, *II purpurea*, *III alba*, and *IV e Sina*, are merely color forms of the widely distributed and variable species. They have been referred by various authors to *Impatiens coccinea* Sims, *Balsamina fasciculata* DC., *B. tilo* DC., and *B. hortensis* Desp.\*

## RHAMNACEAE

## ZIZYPHUS Linnaeus

ZIZYPHUS JUJUBA Lam. Encycl. 3 (1789) 318.

*Rhamnus jujuba* Linn. Sp. Pl. (1753) 194.

*Malum indicum* Rumph. Herb. Amb. 2: 117, t. 36.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 267, November 18, 1913, from cultivated trees, locally known as *vidara*.

This was reduced by Linnaeus to his *Rhamnus jujuba*, in *Stickman Herb. Amb.* (1754) 9, *Amoen. Acad.* 4 (1759) 121, Sp. Pl. ed. 2 (1762) 282, in which he was followed by other authors until Lamarck transferred *Rhamnus jujuba* to *Zizyphus*, where it properly belongs. All authors who have cited Rumphius since Lamarck, refer it to *Zizyphus jujuba* (Linn.) Lam. Skeels, U. S. Dept. Agr. Bur. Pl. Ind. Bull. 208 (1911) 67, considers that *Zizyphus jujuba* Lam. is invalidated by *Z. jujuba* Mill., Gard. Dict. (1768), and proposes to adopt for the plant commonly known as *Zizyphus jujuba* Lam. the name *Z. mauritiana* Lam. Judging from the data given by Rumphius, the three forms mentioned by him on page 118 as coming from Timor and Java are merely slight variants of this common and widely distributed species.

## COLUBRINA † Richard

COLUBRINA ASIATICA (Linn.) Brongn. in *Ann. Sci. Nat.* I 10 (1827) 369.

*Ceanothus asiaticus* Linn. Sp. Pl. (1753) 196.

*Amara litorea* Rumph. Herb. Amb. 5: 74, t. 39, f. 2.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 269, October 29, 1913, in thickets back of the beach, and at Ayer putre in similar habitat, August 23, 1913.

*Amara litorea* Rumph. has not previously been properly reduced. The figure is a good representation of this common and widely distributed Indo-Malayan strand plant. Suggested re-

\* See Hasskarl, *Neue Schlüssel* (1866) 118.

† Retained name, Vienna Code; *Marcorella* Neck. (1790) is older.

ductions by other authors have been *Croton* sp., by Burman f., ex Hasskarl, Neue Schlüssel (1866) 96; some aurantiaceous plant, after Poiret, Hasskarl, l. c.; and Teysmann's suggestion to Hasskarl that it was *Zizyphus timoriensis* DC.

#### VENTILAGO Gaertner

##### VENTILAGO sp.

*Funis viminalis* Rumph. Herb. Amb. 5: 3, t. 2.

Nothing that can be referred to the plant that Rumphius figures and describes occurs in our Amboina collections. The plant is manifestly a *Ventilago*, but its status must remain doubtful until more comprehensive collections are made in Amboina. Linnaeus, in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128, erroneously referred it to *Securidaca volubilis* Linn., with which, however, it has nothing in common. Willdenow, Sp. Pl. 1 (1797) 1106, reduced it to *Ventilago maderaspatana* Gaertn., in which he has been followed by all subsequent authors who have had occasion to cite the Rumphian figure. It is very improbable, however, that this Moluccan plant is identical with *Ventilago maderaspatana* Gaertn. Possibly it is the same as *Ventilago cernua* Tul., in Ann. Sci. Nat. Bot. IV 8 (1857) 123, which was described from specimens collected by Gaudichaud in Rawak Island, Moluccas.

#### VITACEAE

##### AMPELOCISSUS Planchon

**AMPELOCISSUS ARACHNOIDEA** (Hassk.) Planch. in DC. Monog. Phan. 5 (1887) 375.

*Cissus arachnoidea* Hassk. Cat. Hort. Bogor. (1844) 166.

*Cissus blumeana* Hassk. in Flora 25 (1842) Beibl. 39, non Span., nec Steud.

*Ampelopsis indica* Blume Bijdr. (1825) 193, non *Ampelocissus indica* Planch.

*Labrusca molucca* Rumph. Herb. Amb. 5: 452, t. 167.

This rather characteristic species is not represented in our Amboina collections. The figure and the description, however, apply closely to *Ampelocissus arachnoidea* (Hassk.) Planch. and, for that matter, also to *Ampelocissus martini* Planch., which must be very closely allied to the former. Koorders, Exkurs. Fl. Java 2 (1912) 557, seems first to have made this reduction of *Labrusca molucca* Rumph., which is manifestly the correct disposition of it. Linnaeus, in Stickman Herb. Amb. (1754) 24, Syst. ed. 10 (1759) 942, erroneously referred it to *Vitis indica* Linn. and again, with even greater error, placed it under *Vitis trifolia* Linn. in Amoen. Acad. 4 (1759) 133. Loureiro, Fl. Cochinch. (1790)

155, referred it to *Vitis labrusca* Linn., but the Cochin-China form he described under the Linnean name was probably *Ampelocissus martini* Planch. or *A. arachnoidea* Planch.

# CISSUS Linnaeus

CISSUS QUADRANGULARIS Linn. Mant. 1 (1767) 39.

*Vitis quadrangularis* Wall. Cat. (1832) no. 5992.

*Funis quadrangularis* Rumph. Herb. Amb. 5: 83, t. 44, f. 2.

This characteristic species is not represented in our Amboina collections; it is, however, of local occurrence in many parts of Malaya, apparently here an introduced plant. Linnaeus cites the Rumphian name, *Funis quadrangularis*, Sp. Pl. ed. 2 (1763) 1468, as a synonym of *Menispermum crispum* Linn., an error for *Funis felleus* Rumph., as the illustration indicated is t. 44, f. 1, which is a *Tinospora*. In the original description of *Cissus quadrangularis* Linn., *Funis quadrangularis* Rumph. is cited as a synonym, this reduction certainly being the correct disposition of it. Most authors have quoted the Rumphian name and figure under *Cissus quadrangularis* Linn., a few under its synonym *Vitis quadrangularis* Wall.

CISSUS REPENS Lam. Encycl. 1 (1783) 31.

*Cissus cordata* Roxb. Hort. Beng. (1814) 11, *nomen nudum*, Fl. Ind. ed. 2, 1 (1832) 407.

*Vitis repens* W. & A. Prodr. (1834) 125.

*Funis crepitans* *l major* Rumph. Herb. Amb. 5: 446, t. 164, f. 1.

AMBOINA, Eri, Robinson Pl. Rumph. Amb. 215, September 23, 1913, in thickets near the seashore, locally known as *bunga tangong*.

Through confusion of *Vitis alba* Rumph. with t. 164, f. 1, Linnaeus originally reduced the above figure to *Bryonia cordifolia* Linn., in Stickman Herb. Amb. (1754) 24; it is manifest that he intended to cite t. 166, both here and in Amoen. Acad. 4 (1759) 133. In the second edition of the Species Plantarum (1762) 170, he erroneously reduced *Funis crepitans* Rumph. to *Vitis vitiginea* Linn. Vahl, Symb. 3 (1794) 18, places it under *Cissus latifolia* Vahl, of which, however, it is not the type; Murray, Syst. (1774) 133, places it under *Cissus sicyoides* Linn., where it certainly does not belong; Willdenow, Sp. Pl. 1<sup>2</sup> (1797) 656, places it under *Cissus latifolia* Lam.; and finally Roxburgh, Fl. Ind. ed. 2, 1 (1832) 407, places it under *Cissus cordata* Roxb., an exact synonym of *Cissus repens* Lam. *Cissus repens* Lam. was based on *Nerium pulli* Rheed., Hort. Malabar. 7: t. 48, and the form figured by Rheede appears to me to be specifically identical with the form figured by Rumphius as *Funis crepitans l major* and illustrated by the specimen cited above.

**CISSUS ARISTATA** Blume Bijdr. (1824) 183.

*Oculus astaci* Rumph. Herb. Amb. 5: 479, t. 178, f. 1.

AMBOINA, Paso, Waë, and Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 228, 229, 230, October and November, 1913, in thickets, sea level to an altitude of about 225 meters, locally known as *siri barat*.

The identification of these specimens with *Oculus astaci* Rumph. is probably correct, although the stems, as presented by herbarium material, are not quadrangular, yet some of the branchlets are distinctly so. Hasskarl, *Neue Schlüssel* (1866) 149, referred it to *Cissus glauca* Roxb., which is supposed to be a synonym of *Cissus repens* Lam. *Cissus aristata* Blume has been reduced by Miquel and by Planchon to *Cissus adnata* Roxb., Fl. Ind. 1 (1820) 423, a species originally described from Indian material. The Amboina material seems to present some of the characters of *Cissus assamica* Craib, which like *C. adnata* Roxb. is widely distributed in the Indo-Malayan region, but its indumentum is of the *adnata* type. It is possible that the material should be referred to *Cissus adnata* Roxb. rather than to *C. aristata* Blume, but without access to the original material on which the various species were based, it is difficult to determine their exact relationships. The closely allied species involved are *Cissus adnata* Roxb., *C. assamica* Craib, *C. aristata* Blume, *C. rotundifolia* Blume (*C. blumeana* Steud.), and *Cissus pyrrhodasyis* Miq., the last apparently being identical with *Cissus assamica* Craib var. *pilosissima* Gagnep., Not. Syst. 1 (1911) 353.

**VITIS QUADRICORNUTA** Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1863) 85.

*Funis crepitans II minor* Rumph. Herb. Amb. 5: 446, t. 164, f. 2.

This form is not represented in our Amboina collections. It may be a variety of *Cissus repens* Lam., or it may be a closely allied form worthy of specific rank. Planchon, DC. Monog. Phan. 5 (1887) 506, repeats Miquel's description, under *Cissus repens* Lam., with the statement that *Vitis diffusa* Miq., *V. modesta* Miq., *Vitis metziana* Miq., and *V. quadricornuta* Miq. are either synonyms of *Cissus repens* Lam. or represent very closely allied species. The reduction of *Funis crepitans II minor* follows Miquel, but the plant, and for that matter *Vitis quadricornuta* Miq., is a true *Cissus*, although the transfer is not here definitely made in view of the uncertain status of the form described by Miquel.

**CISSUS** sp.?

*Funis crepitans IV* Rumph. Herb. Amb. 5: 447.

Loureiro, Fl. Cochinch. (1790) 83, cites this as a synonym of *Cissus trifoliata* Lour., non Linn., a species of entirely uncertain

status. It must be a species of *Columella* or of *Tetrastigma*, if it belongs in the *Vitaceae*, as it probably does. I have not been able to refer to it any of our Amboina specimens, but further exploration of Amboina may yield material that will lead to a more definite determination of its status.

#### COLUMELLA Loureiro

**COLUMELLA GENICULATA** (Blume) Merr. in Philip. Journ. Sci. 11 (1916) Bot. 132.

*Cissus geniculata* Blume Bijdr. (1825) 184.

*Cayratia geniculata* Gagnep. in Not. Syst. 1 (1911) 345.

**Funis crepitans III trifolia** Rumph. Herb. Amb. 5: 447, t. 165.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 226, October 29, 1913, on trees near the seashore.

The specimen agrees perfectly with Rumphius's description and illustration and is manifestly the species commonly known as *Cissus geniculata* Blume, here called *Columella geniculata* Merr. Lamark, Encycl. 1 (1783) 31, reduced it to *Cissus carnososa* Lam. = *C. trifolia* K. Sch. of which, however, it is not the type. In this erroneous reduction he was followed by all authors who have had occasion to cite the Rumphian illustration; namely, Vahl, Willdenow, Retzius, Poiret, Roemer and Schultes, Pritzel, and Hasskarl.

**COLUMELLA TRIFOLIA** (Linn.) Merr. in Philip. Journ. Sci. 11 (1916) Bot. 134.

*Vitis trifolia* Linn. Sp. Pl. (1753) 203.

*Cissus carnososa* Lam. Encycl. 1 (1783) 31.

*Cissus crenata* Vahl Symb. 3 (1794) 19.

*Cissus acida* Murr. Syst. (1774) 133 (type!).

*Cissus trifolia* K. Sch. in K. Sch. & Holtr. Fl. Kaiser Wilh. Land (1889) 71.

*Cayratia carnososa* Gagnep. in Not. Syst. 1 (1911) 347.

**Folium causeronis I album** Rumph. Herb. Amb. 5: 450, t. 166, f. 2.

**Folium causeronis II** Rumph. Herb. Amb. 5: 450.

AMBOINA, Batoe merah and Negri lama, *Robinson Pl. Rumph. Amb.* 227, August and September, 1913, in thickets at low altitudes, locally known as *kapiala*. The same form is represented by *Rel. Robins.* 2485, from Boeton, July 13, 1913.

**Folium causeronis** Rumph. was reduced by Linnaeus to *Vitis trifolia* Linn. in his *Systema*, ed. 10 (1759) 942, Sp. Pl. ed. 2 (1762) 293, which, as *Cissus trifolia* K. Sch., or *Columella trifolia* Merr., is the correct disposition of it. Of the various synonyms cited above it is the type and whole basis of but one, *Cissus acida* Murr., but is cited as a synonym in the original description of *Cissus carnososa* Lam. and of *Cissus crenata* Vahl. Roemer and Schultes, Syst. 3 (1818) 313, thought that it might

represent *Cissus trilobata* Lam., which is a true *Cissus* and is known only from India. Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1859) 602, placed it under *Cissus cinerea* Lam., which is apparently merely a pubescent form of *Columella trifolia* (Linn.) Merr., and in Ann. Mus. Bot. Lugd.-Bat. 1 (1863) 81 placed it, with doubt, under *Vitis geniculata* (Blume) Miq. = *Columella geniculata* Merr., a species that it certainly does not represent. The form described by Rumphius as *Folium causionis II rubrum* is apparently merely a color variant of *Columella trifolia* (Linn.) Merr., although Hasskarl, Neue Schlüssel (1866) 145, thought that it might be *Vitis geniculata* Miq.

*Columella* Lour., Fl. Cochinch. (1790) 85, has been accepted by me as the proper generic name for this group, although the recognition of it invalidates *Columellia* Ruiz & Pavon (1794) of the *Columelliaceae*. I am of the opinion that Gagnepain\* was justified in segregating from *Cissus* as a distinct genus, those forms placed by Planchon in the subgenus *Cayratia*, differing from him only in the selection of the generic name.

#### TETRASTIGMA Planchon

##### TETRASTIGMA sp.

*Folium causionis III litoreum* Rumph. Herb. Amb. 5: 450.

No *Tetragstigma* occurs in our Amboina collections, yet from the description given by Rumphius, I have little doubt that the form described as *Folium causionis III litoreum* is referable to this genus. Hasskarl, Neue Schlüssel (1866) 145, thought that it might be referable to *Vitis geniculata* Miq. var. *grosseserrata* Miq.

#### LEEAE Royen

##### LEEAE AEQUATA Linn. Mant. 1 (1767) 124.

*Frutex aquosus femina* Rumph. Herb. Amb. 4: 103, t. 45.

AMBOINA, Batoe merah, Robinson Pl. Rumph. Amb. 565, July 20, 1913. in rocky soil at low altitudes.

Burman f., Fl. Ind. (1768) 78, erroneously placed this under *Aralia chinensis* Linn. Willdenow, Sp. Pl. 1<sup>2</sup> (1797) 1177, referred it to *Leea sambucina* Willd., in which he was followed by numerous authors, Persoon, Roxburgh, Roemer and Schultes, Don, Dietrich, and others. Miquel, Ann. Mus. Bot. Lugd. Bat. 1 (1863) 98, reduced it to *Leea aequata* Linn., which is certainly the correct disposition of *Frutex aquosus femina* Rumph. The figure is poor, and from it alone it would be difficult to determine

\* Gagnepain, F. Un genre méconnu: classification des *Cissus* et *Cayratia*. Not. Syst. 1 (1911) 339-362.

which of several species of *Leea* was intended; but the description is unmistakably that of *Leea aequata* Linn., not of *Leea sambucina* Willd., especially in the description of the leaflets as "superne pilis hirta, inferne arenulosa," "arenulosa" manifestly referring to the numerous glands on the lower surface that are so very characteristic of *Leea aequata* Linn.

**LEEACULEATA** Blume Bijdr. (1825) 197; Miq. Ann. Mus. Bot. Lugd.-Bat. 1 (1863) 99.

*Leea spinosa* Spreng. Syst. 1 (1825) 670 p. p., quoad cit. "Ins. Molucc."

*Leea aculeata* Blume var. *moluccana* Miq. l. c.

*Leea serrulata* Miq. l. c.

**Frutex aquosus mas** Rumph. Herb. Amb. 4: 102, t. 44.

AMBOINA, Mahija and town of Amboina, *Robinson Pl. Rumph. Amb.* 231, 232, July 23 and August 7, 1913, along river banks and edges of clearings, altitude 7 to 200 meters, locally known as *kayu baduri*.

The specimens certainly represent *Frutex aquosus mas* Rumph.; they are also undoubtedly referable to the species described by Blume as *Leea aculeata* Bl. and later described by Blanco from Philippine material as a distinct species under the same specific name. The trunk is supplied with short spines, but ordinary herbarium material rarely presents these as the branchlets are nearly always unarmed. Chiefly on account of the spiny stems as depicted by Rumphius, Linnaeus referred *Frutex aquosus mas*, with doubt, to *Aralia chinensis* Linn., in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 967, Sp. Pl. ed. 2 (1762) 393, in which he was followed by Lamarck, Loureiro, Willdenow, Burman f., and other authors. Kostetletzky, Allg. Med.-Pharm. Fl. 5 (1836) 1981, referred it to *Aralia spinosa* Linn. De Candolle, Prodr. 4 (1830) 259, expressed the opinion that the Rumphian figure represented a species of *Leea*, rather than an *Aralia*; and finally Miquel, Ann. Mus. Bot. Lugd.-Bat. 1 (1863) 99, reduced *Frutex aquosus mas* Rumph. to *Leea aculeata* Blume, which is apparently the correct disposition of it. C. B. Clarke, Journ. Bot. 10 (1881) 105, expresses the opinion that *Frutex aquosus mas* Rumph. Herb. Amb. 4: 102, t. 44, does not represent *Leea aculeata* Blume; but it is apparent that he misinterpreted Blume's species, because he puts it in the section with red flowers, while in *Leea aculeata* Blume the flowers are greenish-white or white. The name *Leea spinosa* Spreng. is properly a synonym of *Aralia chinensis* Linn.; Sprengel apparently intended to refer here only the Amboina reference from Rumphius, but does not so state. Following the short description he merely cites "Ins. Molucc. China (*Aralia chinensis* L.)."

## ELAEOCARPACEAE

## ELAEOCARPUS Linnaeus

Five or six species of *Elaeocarpus* are described by Rumphius under various names, such as *Blimbingum sylvestre* Rumph., *Ganitrus*, *Ganitrum oblongum*, *Lignum momentaneum*, and *Arbor rediviva*; while Hasskarl, Neue Schüssel (1866) 49, 50, suggests that *Sicchius femina* Rumph. Herb. Amb. 3: 41, t. 22, and *Carbonaria femina* Rumph., l. c. 53, may be species of *Elaeocarpus*. The last is certainly not referable to the genus.

Five species of this genus have been described from Amboina. These are *Elaeocarpus oppositifolius* (DC.) Miq. and *E. fruticosus* Roxb. (from the Moluccas, probably from Amboina), both very imperfectly described, indicated as having opposite leaves, and certainly the same as *E. edulis* T. & B.; *E. moluccanus* Scheff.; and *E. treubii* Hochr. The last two were described from specimens cultivated in the botanic garden at Buitenzorg, Java, and *E. treubii* Hochr. may not have originated in Amboina. The Robinson collection presents three species, one of which is certainly the same as *Elaeocarpus edulis* T. & B. and with equal certainty is the same as *Blimbingum sylvestre* Rumph., but the other two I cannot definitely refer to any described species. While both have doubtfully been referred to forms figured and described by Rumphius, the identity of neither with the Rumphian plants can be considered certain.

ELAEOCARPUS OPPOSITIFOLIUS (DC.) Miq. Fl. Ind. Bat. 1<sup>2</sup> (1858) 211.

*Aceratium oppositifolium* DC. Prodr. 1 (1824) 519.

*Elaeocarpus fruticosus* Roxb. Fl. Ind. ed. 2, 2 (1832) 600.

*Elaeocarpus excavatus* Reinw. ex Koord. in Lorenz Nova Guinea 8 (1907) 174.

*Blimbingum sylvestre* Rumph. Herb. Amb. 4: 138, t. 73.

AMBOINA, Negri lama, *Robinson Pl. Rumph. Amb.* 372, September 8, 1913; Way tommo, *Robinson Pl. Rumph. Amb.* 373, August 17, 1913, *Pl. Rumph. Amb.* 190, July 23, 1913 (detached mature fruits only), river banks, altitude 15 to 40 meters.

Loureiro, Fl. Cochinch. (1790) 69, was entirely wrong in referring *Blimbingum sylvestre* of Rumphius to his new genus and species, *Cylindria rubra*. The genus is of entirely uncertain status, has nothing to do with *Elaeocarpus*, and must be interpreted from Cochinchina material. *Elaeocarpus edulis* Teysm. & Binn. was based on Amboina specimens, but these authors do not indicate the identity of *Blimbingum sylvestre* with their species. The actual specimens, cited above, agree with Rumphius's description and rather poor figure and bear the native name



*tagorela*; the Amboinese name cited by Rumphius is *tagorela abbal*. The mature fruits are red, about 4 cm long, 2 cm wide, 3-angled, apex acute or acuminate, the pericarp rather peculiarly produced at the base, giving the fruit the truncate appearance represented in Rumphius's figure. Teysmann gave the native names as *bliembieng-oetan*, *tagorela*, and *kakarja*. The type of *Aceratium oppositifolium* DC. was from Amboina, and the description conforms with the characters of the species commonly known as *Elaeocarpus edulis* T. & B., the type of which was also from Amboina. The type of *Elaeocarpus oppositifolius* Roxb. was from the Moluccas, very likely from Amboina, and Roxburgh's short description also conforms with *Elaeocarpus edulis* T. & B. *Elaeocarpus excavatus* Reinw., a herbarium name published by Koorders, was also based on an Amboina specimen. The species is in cultivation in the botanic garden, Buitenzorg, Java, and occurs also in New Guinea.

**ELAEOCARPUS RUMPHII** sp. nov. § *Monocera*.

*Arbor rediviva* Rumph. Herb. Amb. 3: 165, t. 104?

AMBOINA, between Soja and Hatalai and at Hitoe messen, *Robinson Pl. Rumph. Amb. 370* (type), October 24 and November 1, 1913, in forests, altitude 175 to 350 meters.

*Arbor* circiter 12 m alta, inflorescentiis exceptis glabra; foliis oblongis, coriaceis, longe petiolatis, usque ad 20 cm longis, obscure obtuse acuminatis, basi rotundatis vel leviter cordatis, margine obscure crenatis, nervis utrinque 8 ad 10, prominentibus; racemis numerosis, pubescentibus, floribus longe pedicellatis, sepalis lanceolatis, pubescentibus, circiter 10 mm longis, petalis sepalis aequantibus, intus densissime retrose hirsutis, apice subacutis leviter parce lobatis haud fimbriatis.

A tree about 12 m high, quite glabrous except the inflorescence. Branches reddish-brown, terete, smooth, the ultimate ones 6 to 8 mm in diameter. Leaves alternate, coriaceous, green and shining when dry, 15 to 20 cm long, 5 to 7.5 cm wide, gradually narrowed upward to the obscurely blunt-acuminate apex, the base rather broad, somewhat abruptly rounded or slightly cordate, margins distantly and rather obscurely crenate; lateral nerves 8 to 10 on each side of the midrib, prominent, anastomosing, the primary reticulations slender, subparallel, the ultimate ones rather close, distinct, the whole lower surface with scattered, minute dark-colored, roundish glands or gland-like bodies; petioles reddish-brown, 6 to 7 cm long. Racemes axillary, about 15 cm long, uniformly pubescent with short, grayish hairs as are the pedicels and sepals. Pedicels about 1.5 cm long.

Sepals 5, lanceolate, about 10 mm long, 3 mm wide, narrowed upward, subacute. Petals as long as the sepals, oblong-lanceolate, outside densely pubescent with pale-brownish, shining, appressed hairs, inside uniformly and densely hirsute with reflexed hairs, the apical 2 mm cut into few narrow lobes, usually two lateral slender ones on each side with a central somewhat stouter one. Stamens about 45, the filaments scabrid, 2 to 2.5 mm long; anthers linear, scabrid, 4.5 to 5 mm long including the slender 1 to 1.5 mm long awn that terminates one cell. Ovary ovoid, densely pubescent, 2-celled; style 4 to 5 mm long, pubescent below.

It is by no means certain that this is *Arbor rediviva* of Rumphius, although the plant figured and described by Rumphius is manifestly an *Elaeocarpus*. In the species above described the leaves are larger than in *Arbor rediviva*, rounded or cordate at the base, not acute, and do not present the peculiar protuberances (galls?) shown by Rumphius. It was by Loureiro, Fl. Cochin. (1790) 663, referred to *Dicalyx cochinchinensis* Lour., but this is a species of *Symplocos* and judging from the description is entirely different from *Arbor rediviva* Rumph.

**ELAEOCARPUS AMBOINENSIS** sp. nov. § *Ganitrus*.

*Ganitrus* Rumph. Herb. Amb. 3: 160, t. 101?

AMBOINA, Paso, near the coast, *Robinson Pl. Rumph. Amb.* 371 (type), November, 25, 1913.

*Arbor* circiter 12 m alta partibus junioribus inflorescentiisque parce pubescentibus exceptis glabra; foliis alternis, anguste oblongis, chartaceis, nitidis, usque ad 15 cm longis, utrinque subaequaliter angustatis, basi acutis, apice obtusis, margine crenulatis, nervis utrinque circiter 13, prominentibus; racemis e ramis defoliatis, tenuibus, 10 ad 12 cm longis; floribus numerosis, tenuiter pedicellatis, sepalis anguste lanceolatis, acuminatis, parcissime pubescentibus, circiter 11 mm longis, petalis aequilongis, oblongo-lanceolatis, apice usque ad  $\frac{2}{3}$  fassis, basi ad margine dense puberulis exceptis glabris; ovario 5-loculare.

A tree about 12 m high, glabrous except the slightly appressed-pubescent younger parts and inflorescence. Branches terete, reddish-brown, glabrous, the younger ones somewhat angled, brownish-olivaceous, minutely and rather sparingly pubescent. Leaves alternate, narrowly oblong, firmly chartaceous, subolivaceous, of about the same color on both surfaces and shining when dry, 12 to 15 cm long, 3 to 5 cm wide, subequally narrowed to the acute base and to the blunt apex, the tip sometimes slightly retuse and minutely apiculate, margins distinctly crenulate; lateral

nerves about 13 on each side of the midrib, slender but prominent, curved, anastomosing, the reticulations distinct; petioles slender, about 1 cm long, the younger ones slightly pubescent. Racemes numerous, solitary, spreading, from the branches below the leaves in the axils of fallen leaves, 10 to 12 cm long, slender, the rachis and pedicels more or less pubescent with short, appressed, pale-gray hairs. Flowers 20 to 25 or more in each raceme, the buds lanceolate, acuminate, whitish when fresh, brown when dry, the opened flowers greenish, the pedicels slender, about 1.5 cm long. Sepal 5, narrowly lanceolate, acuminate, externally slightly pubescent, about 11 mm long, 2 to 2.5 mm wide. Petals as long as the sepals, oblong-lanceolate, the upper two-fifths cut into from 15 to 20 slender fimbriae, these united into 5 or 6 primary divisions, quite glabrous except the densely pubescent or puberulent margins in the lower part. Stamens about 50, the filaments slender, scabrid, 1 to 1.5 mm long; anthers linear, 5 to 6 mm long including the slender, solitary, bristle-like, 1 mm long awn that tips one of the cells. Ovary ovoid, densely pubescent, somewhat sulcate, 5-celled; style 5 to 6 mm long, pubescent below.

This species is very closely allied to the Philippine *Elaeocarpus dolichopetalus* Merr., from which it is distinguished by its blunt, not acuminate leaves, its longer racemes, longer pedicels, and smaller flowers.

It is by no means certain that it is the same as *Ganitrus* of Rumphius. The figure of *Ganitrus* presents relatively shorter, fewer-nerved, rather differently shaped leaves, and relatively shorter, fewer-flowered racemes. It was apparently drawn from Amboina specimens, although Rumphius includes in the description specimens from other parts of the Malay Archipelago.

Historically, *Ganitrus* was first reduced by Linnaeus to his *Elaeocarpus serratus*, in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1075, Sp. Pl. ed. 2 (1762) 734, in which he was followed by Burman f., Loureiro, Willdenow, and Lamarck. However, *Elaeocarpus serratus* Linn., Sp. Pl. (1753) 515, was based on Indian and Ceylon plants, and has nothing to do with the plant described by Rumphius. Gaertner, Fruct. 2 (1791) 271, t. 139, f. 6, takes his generic name *Ganitrus* from Rumphius, and refers to *Ganitrus sphaerica* Gaertn. the figure and description of Rumphius mentioned above. Gaertner's description was from an actual specimen, and his species must be interpreted from the material described. Gaertner's species is probably the same as the one later described by Roxburgh as *Elaeocarpus ganitrus* Roxb., Fl. Ind. ed. 2, 2 (1832) 592, who refers to his species the Rumphian plant and takes his specific

name from Rumphius. However, the species actually described by Roxburgh was based on Indian material and manifestly is not the Rumphian plant. The proper name for this Indian species is apparently *Elaeocarpus sphaericus* (Gaertn.) K. Sch. (*E. ganitrus* Roxb., non *Ganitrus* Rumph.). The species described above should be compared critically with *Elaeocarpus angustifolius* Blume (*Aceratium ganitri* Hassk.), to which it is manifestly allied.

**ELAEOCARPUS OBLONGUS** Gaertn. Fruct. 1 (1791) 202, t. 43, f. 3.

*Ganitrum oblongum* Rumph. Herb. Amb. 3: 163, t. 102?

This species is not represented in our Amboina collections. Rumphius states that the form he described was found in Amboina, Celebes, and Bali. Gaertner placed it under *Elaeocarpus oblongus* in the original description of that species, but I have no means of determining whether or not the specimens he had before him were identical with the form Rumphius described and figured. He does not state the origin of his material. Lamarck, Encycl. 2 (1788) 604, referred it tentatively to *Elaeocarpus integrifolius* Lam., but his type was from the Isle of France and is certainly not the same as the Moluccan form. Willdenow, Sp. Pl. 2<sup>2</sup> (1799) 1170, followed Lamarck in his disposition of it. Hasskarl, Neue Schlüssel (1866) 62, suggests that it is *Elaeocarpus macrophyllus* Blume, which is very improbable. Pending a critical revision of the genus or at least of the Indo-Malayan species, it seems best to leave it under *Elaeocarpus oblongus* Gaertn. I have seen no authentic species of Gaertner's species. do not know of what country it is a native, and strongly suspect that current interpretations of it are merely approximate; perhaps the modern conception of the species is based more on Rumphius's figure than on Gaertner's actual specimens.

**ELAEOCARPUS** sp.?

*Lignum momentaneum* Rumph. Herb. Amb. 3: 164, t. 103.

This reduction is suggested by Hasskarl, Neue Schlüssel (1866) 62, following Savigny's note in Lamarck, Encycl. 4 (1798) 693, under the Rumphian name *pagamat*. There is little in the description or in the figure to indicate an *Elaeocarpus*, and if the infructescence is drawn correctly, it certainly is not a representative of this genus, although Rumphius compares the fruits with his *Ganitrus*, which is an *Elaeocarpus*. Its status should be determinable from continued field work in Amboina. as Rumphius states that it was common in the Moluccas and cites the native names *pagamatta* and *pegang matta* for Amboina and *sal* for Ternate.

## GONYSTYLACEAE

## GONYSTYLUS Teysmann and Binnendyck

GONYSTYLUS BANCANUS (Miq.) Baill. ex Hook. f. & Jackson Index Kewensis 2 (1895) 1055.

*Aquilaria bancana* Miq. Fl. Ind. Bat. Suppl. (1860) 141, 355.

*Gonystylus miquelianus* T. & B. in Bot. Zeit. 20 (1862) 265.

*Agallochum spurium* Rumph. Herb. Amb. 2: 40.

Teymann and Binnendyck reduced *Agallochum spurium* Rumph. to *Gonystylus miquelianus* T. & B., in Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1864) 133, where the species is minutely described and figured. It is impossible definitely to determine from Rumphius's description whether the plant he had in mind was *G. bancanus* Baill. or was one of the other species of the genus. The fact that a portion of his material came from Borneo leads one to suspect that he may have had one of the Bornean species, *G. affinis* Radlk., *G. borneensis* Gilg, *G. pluricornis* Radlk., or *G. calophyllus* Gilg.

*Agallochum spurium album* Rumph., very briefly described in this chapter, is indeterminable from any data at present available. *Agallochum spurium* III, merely mentioned, is *Excoecaria agallocha* Linn., later described and figured by Rumphius, Herb. Amb. 2: 237, t. 79, 80 (see p. 327).

## TILIACEAE

## CORCHORUS Linnaeus

CORCHORUS CAPSULARIS Linn. Sp. Pl. (1753) 529.

*Ganga sativa* Rumph. Herb. Amb. 5: 212, t. 78, f. 1.

This species is not represented in our Amboina collections, but Rumphius's figure is unmistakably *Corchorus capsularis* Linn. It was first reduced by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1079, all later authors concurring in this reduction.

CORCHORUS OLITORIUS Linn. Sp. Pl. (1753) 529.

*Ganga agrestis* Rumph. Herb. Amb. 5: 213 (haud t. 78, f. 2).

This species is not represented in the Amboina collections. The description is unmistakably that of *Corchorus olitorius* Linn. The figure, however, is certainly no *Corchorus*, but I am unable to suggest what species was intended; it does not agree at all with the description in either its leaf or its fruit characters. The figure was referred by Linnaeus to *Corchorus olitorius* in Stickman, Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130.

## COLUMBIA Persoon

COLUMBIA SUBOBOVATA Hochr. Pl. Bogor. Exsicc. (1904) 25.

*Restiaria nigra* Rumph. Herb. Amb. 3: 188.

*Perticaria tertia* Rumph. Herb. Amb. 3: 189, *t. 120*.

*Perticaria tertia latifolia* Rumph. Herb. Amb. 3: 189.

AMBOINA, Negri lama, *Robinson Pl. Rumph. Amb. 279*, September 8, 1913, in light woods, altitude 10 meters, locally known as *hunot*; Amboina (town), *Robinson Pl. Rumph. Amb. 278*, July 30, 1913, river sides at 5 meters altitude, locally known as *morong itam*; Paso, *Robinson Pl. Rumph. Amb. 280*, near the seashore, October 29, 1913, locally known as *morong mera* and *hunut puti*.

There is very little doubt that the three Rumphian descriptions, cited above, represent the same species, and that all are *Columbia* (*Diplophractum*) *subobovata* Hochr. The species presents great variation in its vegetative characters, the leaves varying from 8 to 35 cm in length and from 5 to 18 cm in width, all intermediate sizes being found on the same specimen. Likewise the leaf bases on the same specimen vary from perfectly equilateral to strongly inequilateral. The figure given by Rumphius for *Perticaria tertia* is very poor, and one would never suspect that it was intended for a species of *Columbia*. The description, however, is unmistakable. Loureiro, Fl. Cochinch. (1790) 639, referred, with doubt, *Restiaria nigra* Rumph., Herb. Amb. 3: 188, to *Restiaria cordata* Lour. Loureiro's species, however, is supposed to be an *Uncaria*, is certainly not the same as the Rumphian one, and must be interpreted from Cochinchina material. The proper disposition of *Perticaria* has not before been indicated.\*

## TRIUMFETTA Linnaeus

TRIUMFETTA BARTRAMIA Linn. Syst. ed. 10 (1759) 1044.

*Triumfetta rhomboidea* Jacq. Enum. Pl. Carib. (1762) 22, Stirp. Am. Hist. (1763) 147, *t. 90*.

*Lappago amboinica sylvestris* Rumph. Herb. Amb. 6: 60 (haud *t. 25, f. 2*).

AMBOINA, town of Amboina and Gelala, *Robinson Pl. Rumph. Amb. 277*, August, 1913, along the beach and in waste places at low altitudes.

*Lappago amboinica* Rumph. Herb. Amb. 6: 59, *t. 25, f. 2*, is certainly *Urena lobata* Linn. The figure is poor, but the drawing of the fruits and the description are unmistakably *Urena*, while the drawing of the flowers on the same plant are likewise

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\* For a further discussion of the status of *Restiaria nigra* Rumph. see *Trichospermum quadrivalve* Merr. in Philip. Journ. Sci. 11 (1916) Bot. 289.

unmistakably those of *Triumfetta*. The figure has by some authors been referred to *Urena*, by others to *Triumfetta*. The description of *Lappago amboinica sylvestris* is certainly that of a *Triumfetta*. Hasskarl, Neue Schlüssel (1866) 163, has referred it to *Triumfetta rotundifolia* Lam., but Lamarck's species is Indian not Malayan.

The oldest name for this species is *Bartramia indica* Linn. Sp. Pl. (1753) 389, but the specific name is invalidated in *Triumfetta* by *Triumfetta indica* Lam. *Triumfetta bartramia* Linn. was based on *Bartramia indica* Linn. Sp. Pl. (1753) 389, with the addition of a reference to "Rumph. Amb. 3: t. 119," which is *Commersonia bartramia* (Linn.) Merr. I interpret the type of *Bartramia indica* Linn. as *Fl. Zeyl.* 174, which according to Thwaites, *Fl. Ceyl.* 1 (1893) 180, is *Triumfetta rhomboidea* Jacq., who also states that:

The name *T. Bartramia* has priority (1762), but Linnaeus may have included in it more than *T. rhomboidea* Jacq. as now understood.

## MALVACEAE

## ABUTILON Tournefort

ABUTILON INDICUM (Linn.) Sweet Hort. Brit. (1827) 54.

*Sida indica* Linn. Cent. Pl. 2 (1756) 26, Amoen. Acad. 4 (1759) 324.

*Abutilon laeve* Rumph. Herb. Amb. 4: 31, t. 11.

This species is not represented in our Amboina collections, but *Rel. Robins.* 2518 from Boeleleng, Bali, is *Abutilon indicum* Sweet. *Abutilon laeve* Rumph. was originally considered by Linnaeus to represent a variety of *Sida abutilon* Linn., in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 125. It was first reduced to *Sida indica* Linn. by Loureiro, *Fl. Cochinch.* (1790) 414, which as *Abutilon indicum* (Linn.) Sweet is certainly the correct disposition of it. By some authors it is considered to represent *Sida indica* Sweet var. *populifolia* (Lam.) Mast. in Hook. f. *Fl. Brit. Ind.* 1 (1874) 326, while Roxburgh, *Fl. Ind. ed.* 2, 3 (1832) 178, erroneously placed it under *Sida abutilon* Linn.=*Abutilon avicennae* Gaertn.

ABUTILON HIRTUM (Lam.) Sweet Hort. Brit. (1827) 53.

*Sida hirta* Lam. Encycl. 1 (1783) 7.

*Sida pilosa* L'Hérit. Stirp. (1784-85) 130.

*Abutilon hirsutum* Rumph. Herb. Amb. 4: 29, t. 10.

This species is not represented in our Amboina collections. The Rumphian description and plate were cited by Lamarck in

the original description of *Sida hirta*, but the actual type of the species was a plant collected by Sonnerat. Linnaeus originally considered the plate to represent a variety of *Sida abutilon* Linn., in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 125; while Burman f., Henschel, and Murray erroneously placed it under *Sida asiatica* Linn. By other authors it has been placed under *Abutilon graveolens* Wight & Arn. (*Sida graveolens* Roxb.), to which *Abutilon hirtum* has been reduced as a variety,\* but even if varietal forms be recognized, the specific name, *hirtum*, being much older, should be retained.

*Abutilon litoreum* Rumph. Herb. Amb. 4: 33, briefly described in the same chapter with *Abutilon laeve*=*Abutilon indicum* Sweet, was thought by Hasskarl, Neue Schlüssel (1866) 73, possibly to represent *Abutilon albescens* Miq. This suggested reduction of *Abutilon litoreum* is possibly correct, but the definite identification of the form described by Rumphius must await further botanical exploration of the Moluccas. The plant is undoubtedly an *Abutilon* and may be a form of *A. indicum* Sweet.

#### SIDA Linnaeus

**SIDA ACUTA** Burm. f. Fl. Ind. (1768) 147.

*Sida carpinifolia* Linn. f. Suppl. (1781) 307.

*Sida scoparia* Lour. Fl. Cochinch. (1790) 414.

*Sigalurium* II *longifolium* Rumph. Herb. Amb. 6: 45, t. 18, f. 2.

AMBOINA, Lateri, Robinson Pl. Rumph. Amb. 500, August 25, 1913, altitude about 100 meters.

The figure given by Rumphius is unmistakably *Sida acuta* Burm. f., and Burman f. cites it in the original publication of his species, although his description is based primarily on actual specimens. Linnaeus erroneously referred it to *Sida spinosa* Linn., in Stickman, Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 1145. Loureiro, Fl. Cochinch. (1790) 414, cites it as representing his *Sida scoparia*. Most recent authors have followed Burman f., which is certainly the correct disposition of *Sigalurium longifolium*.

**SIDA RETUSA** Linn. Sp. Pl. ed. 2 (1763) 961.

*Sigalurium* I *rotundum* s. *vulgare* Rumph. Herb. Amb. 6: 44, t. 19.

This species is not represented in our Amboina collections. The figure is unmistakably *Sida retusa* Linn., and it is cited in the original description of that species, although it is not the type. It was originally reduced by Linnaeus to *Sida alnifolia* Linn., in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4

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\* Masters in Hook. f. Fl. Brit. Ind. 1 (1874) 327.



(1759) 134, Syst. ed. 10 (1759) 1145, where it manifestly does not belong.

*SIDA CORDIFOLIA* Linn. Sp. Pl. (1753) 684.

*Abutilon montanum* Rumph. Herb. Amb. 4: 32.

This species is not represented in our Amboina collections, but *Rel. Robins.* 2512, from Boeleleng, Bali, is a form of this common and widely distributed species. The reduction of *Abutilon montanum* to *Sida cordifolia* follows Hasskarl, Neue Schlüssel (1866) 73, and is almost certainly the correct disposition of it.

The form from the Cape of Good Hope, indicated by Rumphius, l. c., as *Abutilon montanum* e Capite bonae spei, suggested by Hasskarl, Neue Schlüssel (1866) 73, as possibly *Sida triloba* Cav. or *S. sonneratiana* Cav. = *Abutilon sonneratianum* Sweet, may be identifiable from a study of the South African *Malvaceae* in *Sida*, *Abutilon*, and other allied genera. It may be one of the species that Hasskarl has indicated, but again it may be quite different from both of these.

*SIDA* spp.?

*Sigalurium rotundum silvestre* Rumph. Herb. Amb. 6: 45.

*Sigalurium* III *album* Rumph. Herb. Amb. 6: 45.

The descriptions are too indefinite to warrant accurate determination of these two forms. Hasskarl, Neue Schlüssel (1866) 160, suggests that the former may be *Sida carpinoides* DC. = *Malvastrum coromandelianum* (Linn.) Garcke (*M. tricuspidatum* G. Gray) and that the latter may be *Sida alba* Linn., but both of these suggested determinations are probably wrong.

#### URENA Linnaeus

*URENA LOBATA* Linn. Sp. Pl. (1753) 692.

*Lappago amboinica* Rumph. Herb. Amb. 6: 59, t. 25, f. 2.

AMBOINA, Caju poeti, *Robinson Pl. Rumph. Amb.* 495, August 2, 1913, roadsides, etc., up to an altitude of 350 meters.

So far as the Rumphian figure and description go, *Urena lobata* includes the forms described as I *laciniata* and II *latifolia*, while III *silvestris* and the drawings of the attached flowers are *Triumfetta bartramia* Linn. (see p. 354). The descriptions quoted above and the figure, excepting the flowers, are unmistakably *Urena lobata* Linn. On account of the mixture of two entirely different species in the drawing, the plate has by some been cited under *Triumfetta*, by others under *Urena*. The plate and description, for the most part, are *Urena lobata* Linn., although originally reduced by Linnaeus, in *Stickman Herb. Amb.* (1754)

26, Amoen. Acad. 4 (1759) 134, to *Urena sinuata* Linn., but corrected in his Systema, ed. 10 (1759) 1148, to *Urena lobata*. Other names involved in the reduction are *Urena lappago* Sm. and *U. heterophylla* Lam.

#### ABELMOSCHUS Medikus

**ABELMOSCHUS MOSCHATUS** Medik. Malv. (1787) 46.

*Hibiscus abelmoschus* Linn. Sp. Pl. (1753) 696.

*Granum moschatum* Rumph. Herb. Amb. 4: 38, t. 15.

AMBOINA, Toelehoe, Robinson Pl. Rumph. Amb. 492, November 25, 1913, in grasslands, altitude about 15 meters, locally known as *daun kasturi*.

The original reduction of *Granum moschatum* to *Hibiscus abelmoschus* Linn. was made by Linnaeus, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1149, Sp. Pl. ed. 2 (1763) 980, which is certainly the correct disposition of it, although now it is very generally recognized as representing a distinct genus and is classified as *Abelmoschus moschatus* Medik. The Amboina specimen cited above is much more pubescent than the commoner forms of the species, but probably belongs here.

**ABELMOSCHUS MINDANAENSIS** Warb. in Perk. Frag. Fl. Philip. (1904) 111.

*Granum moschatum agreste* Rumph. Herb. Amb. 4: 39.

AMBOINA, Way tommo, Robinson Pl. Rumph. Amb. 493, August 17, 1913, along river banks, altitude about 50 meters. Erect, about 1.5 meters high.

*Granum moschatum agreste* is very briefly described, but the probabilities are that the plant here determined as *Abelmoschus mindanaensis* Warb. is the one intended by Rumphius. The description given by Rumphius is mainly comparative with *Abelmoschus moschatus* Medik., a taller, more woody plant than the latter, with which data the cited specimen agrees. It cannot possibly be *Abelmoschus ficulneus* W. & A. as suggested by Hasskarl, Neue Schlüssel (1866) 74. The Amboina specimen is apparently a perfect match for our Mindanao material that unquestionably represents Warburg's species; it has previously been reported only from Mindanao.

#### HIBISCUS Linnaeus

**HIBISCUS TILIACEUS** Linn. Sp. Pl. (1753) 694.

*Paritium tiliaceum* A. St. Hil. Fl. Bras. Merid. 1 (1825) 256.

*Novella* Rumph. Herb. Amb. 2: 218, t. 73.

*Novella repens* Rumph. Herb. Amb. 2: 222.

*Novella rubra* Rumph. Herb. Amb. 2: 223.

AMBOINA, Kati-kati, Robinson Pl. Rumph. Amb. 497, October 17, 1913, in cultivated ground, altitude about 80 meters, locally known as *baru*.

*Novella* of Rumphius was first reduced to *Hibiscus tiliaceus* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1149, Sp. Pl. ed. 2 (1763) 976, which disposition of it is certainly correct and which has been accepted by practically all authors. The figure is not good. The form described by Rumphius as *Novella repens* is certainly the form of *Hibiscus tiliaceus* Linn. with procumbent trunks that is very abundant in some localities, while *Novella rubra* is also manifestly merely a form of the same species.

**HIBISCUS MUTABILIS** Linn. Sp. Pl. (1753) 694.

*Flos horarius* Rumph. Herb. Amb. 4: 27, t. 9.

This widely cultivated form is not represented in our Amboina collections. The figure, however, is unmistakably referable to *Hibiscus mutabilis* Linn. and was first reduced to this species by Linnaeus himself, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 125, Syst. ed. 10 (1759) 1149, Sp. Pl. ed. 2 (1763) 977, in which he has been followed by all authors.

**HIBISCUS SURATTENSIS** Linn. Sp. Pl. (1753) 696.

*Hibiscus convolvulaceus* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 216 (Neue Schlüssel 74) (type!).

*Herba crinalium domestica* Rumph. Herb. Amb. 4: 40, t. 16.

*Herba crinalium silvestris* Rumph. l. c. 41.

AMBOINA, near the town of Amboina, Robinson Pl. Rumph. Amb. 496, August 8, 1913, near the beach.

The original reduction of *Herba crinalium* to *Hibiscus suratensis* Linn. was made by Linnaeus, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1145, Sp. Pl. ed. 2 (1763) 979, which is certainly the correct disposition of it. This reduction has been followed by all authors. Hasskarl, however, Neue Schlüssel (1866) 74, decided that *Herba crinalium silvestris* represented a distinct species, which he named and described after Rumphius, as *Hibiscus convolvulaceus*, the publication of which has been overlooked by all authors and is not included in Index Kewensis. I consider this to be merely a form of *Hibiscus suratensis* Linn. with narrowly lobed leaves.

**HIBISCUS ROSA-SINENSIS** Linn. Sp. Pl. (1753) 694.

*Flos festalis* Rumph. Herb. Amb. 4: 24, t. 8.

This reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 15, and the figure was consistently cited by Linnaeus in his subsequent writings; while his reduction, certainly correct, has been followed by all authors. The form figured is the commonly cultivated one with double flowers. The form

described as *ruber simplex* is the ordinary type with normal red flowers. Other forms described are the one with yellowish double flowers and one with normal, pale or nearly white flowers. This commonly cultivated plant does not occur in our Amboina collections, but is doubtless common in Amboina in cultivation, as it is in all parts of Malaya.

#### THESPESIA Solander

**THESPESIA POPULNEA** (Linn.) Soland. ex Corr. in Ann. Mus. Paris 9 (1807) 290.

*Hibiscus populneus* Linn. Sp. Pl. (1753) 694.

*Thespesia macrophylla* Blume Bijdr. (1825) 73, 106.

*Novella litorea* Rumph. Herb. Amb. 2: 224, t. 74.

AMBOINA, Amahoesoe and Binting, *Robinson Pl. Rumph. Amb.* 498, August and September, 1913, along the strand.

*Novella litorea* was first reduced by Linnaeus to *Hibiscus populneus* Linn., in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1149, Sp. Pl. ed. 2 (1763) 976, which, as *Thespesia populnea* Soland., seems to be the correct disposition of it. Blume, however, Bijdr. (1825) 73, has proposed *Thespesia macrophylla* as a distinct species, apparently based wholly on the Rumphian figure and description, and many authors have recognized it as a valid species. Any large series of specimens from the Malayan region presents such relatively great variations in the characters by which the two forms have been distinguished, that I am by no means certain that they are specifically distinct and prefer to retain the Amboina plant under the older name.\*

#### GOSSYPIUM Linnaeus

**GOSSYPIUM BRASILIENSE** Macf. Fl. Jam. 1 (1837) 72.

*Gossypium lapideum* Tussac, Fl. Antil. 2 (1818) 67, *nomen nudum*.

*Gossypium latifolium* Rumph. Herb. Amb. 4: 37, t. 13.

AMBOINA, Koesoe koesoe sereh, *Robinson Pl. Rumph. Amb.* 494, August 23, 1913, locally known as *kapas*.

The Rumphian species was first reduced by Linnaeus to *Gossypium arboreum* Linn., in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1148, Sp. Pl. ed. 2 (1763) 975, where it certainly does not belong. Lamarck cites it in the original description of *Gossypium vitifolium*, Encycl. 2 (1786) 135, but Lamarck's type was an actual specimen collected by Sonnerat. Watt, Wild and Cultivated Cotton Plants of the World (1907) 255, leaves the Rumphian name as a syn-

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\* See Baker in Journ. Bot. 35 (1897) 52.

onym of Lamarck's species, but states that "Rumphius's Celebes plant shows the leaves too deeply 5-lobed (as in *G. brasiliense*) to be typical *G. vitifolium*." Other names involved in the reduction are *Gossypium nigrum* Ham. and *G. indicum* Lam. While the disposition of *Gossypium latifolium* Rumph. as a synonym of *G. brasiliense* Macf. is not certainly the correct one, it is a reasonably safe one for the present.

GOSSYPIMUM INDICUM Lam. Encycl. 2 (1786) 134.

*Gossypium nanking* Meyen Reise 2 (1836) 323.

*Gossypium* Rumph. Herb. Amb. 4: 33, t. 12.

This species is not represented in our Amboina collections. The Rumphian plant was first reduced by Linnaeus to *Gossypium herbaceum* Linn., in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1148, Sp. Pl. ed. 2 (1763) 975, where it certainly does not belong. Lamarck, Encycl. 2 (1786) 134, cited the Rumphian figure as representing his *Gossypium indicum*, although the actual type of that species is a specimen collected by Sonnerat. However, Watt considers that *Gossypium indicum* Lam. is a synonym of *G. nanking* Meyen, and as Lamarck's specific name is the oldest valid one for the species it is here accepted. Watt, Wild and Cultivated Cotton Plants of the World (1907) 128, definitely refers Rumphius's figure to *Gossypium nanking* var. *nadam* Watt. Hasskarl, Neue Schlüssel (1866) 73, interprets the Rumphian description as *Gossypium minus* and *G. majus*, considering the tall form described to be *Gossypium arboreum* Linn.

GOSSYPIMUM PURPURASCENS Poir. in Lam. Encycl. Suppl. 2 (1811) 369.

*Gossypium floribus fusco-rubentibus* Rumph. Herb. Amb. 4: 34.

The reduction merely follows Hasskarl's suggestion. It is probable that it is the correct disposition of the Javan form that Rumphius casually and very briefly describes, but the data given are too few to warrant a certain identification of it.

## BOMBACACEAE

### DURIO Adanson

DURIO ZIBETHINUS Murr. Syst. (1774) 591.

*Durio* Rumph. Herb. Amb. 1: 99, t. 29.

AMBOINA, Batoe gadjah, *Robinson Pl. Rumph. Amb. 69*, August 5, 1913, from a cultivated tree, locally known as *durion*.

*Durio* was reduced to *Durio zibethinus* by Murray in the original description of the species, the characters being apparently

taken largely, if not wholly, from Rumphius. The three forms briefly described by Rumphius on page 101 may be merely variants of the common durian or some of them may represent distinct species.

#### CEIBA Medikus

**CEIBA PENTANDRA** (Linn.) Gaertn. Fruct. 2 (1791) 244, t. 133.

*Bombax pentandrum* Linn. Sp. Pl. (1753) 511.

*Eriodendron anfractuosum* DC. Prodr. 1 (1824) 479.

*Gossampinus alba* Ham. in Trans. Linn. Soc. 15 (1826) 126.

*Gossampinus rumphii* Schott. & Endl. Meletem. (1832) 35.

*Eriophorus javana* Rumph. Herb. Amb. 1: 194, t. 80.

The common kapoc or silk cotton tree is not represented in our Amboina collections. *Eriophorus javana* Rumph. was first reduced by Linnaeus to *Bombax pentandrum* Linn., in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1754) 120, Sp. Pl. ed. 2 (1763) 958, but in the Systema, ed. 10 (1759) 1141, it is placed under *Bombax aculeatum* Linn., which may prove to be merely a synonym of *Ceiba pentandra* Gaertn. *Bombax aculeatum* Linn. does not appear in Index Kewensis.

#### STERCULIACEAE

##### PENTAPETES Linnaeus

**PENTAPETES PHOENICEA** Linn. Sp. Pl. (1753) 698.

*Flos inpius* Rumph. Herb. Amb. 5: 288, t. 100, f. 1.

This well-known species is not represented in our Amboina collections. The Rumphian figure and description are unmistakably the same as *Pentapetes phoenicea* Linn., and Linnaeus himself made the first reduction, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1150, Sp. Pl. ed. 2 (1763) 958. This reduction has been followed by all subsequent authors.

##### COMMERSONIA Forster

**COMMERSONIA BARTRAMIA** (Linn.) comb. nov.

*Muntingia bartramia* Linn. Amoen. Acad. 4 (1759) 124 (type!).

*Commersonia echinata* Forst. Char. Gen. (1776) 44, t. 22.

*Restiaria alba* Rumph. Herb. Amb. 3: 187, t. 119.

AMBOINA, Hoenet and Soja, *Robinson Pl. Rumph. Amb. 294*, August 2, 1913, in flower, October 18, 1913, in fruit, locally known as *marong*, *morong mera*, and *hunut*. In clearings, altitude 200 to 375 meters.

*Restiaria alba* Rumph. was reduced by Linnaeus, Amoen. Acad. 4 (1759) 124, to *Muntingia bartramia* Linn. and is the whole basis of the Linnean species, which has been entirely overlooked.

In the same year Linnaeus, Syst. ed. 10 (1859) 1044, erroneously referred the same figure to *Triumfetta bartramia* Linn. The Rumphian plate and description were reduced to Forster's species by Linnaeus f., Suppl. (1781) 187, and this disposition of it has been accepted by subsequent authors. In this connection botanists generally have recognized *Commersonia echinata* Forst. and *C. platyphylla* Andr. as two distinct species. The latter is hardly more than a form or a variety of the former. Gagnepain, Not. Syst. 1 (1909) 96, in a note regarding the typical form of Forster's species, reduces *Commersonia platyphylla* Andr. to *C. echinata* Forst. var. *platyphylla* (Andr.) Gagnep. Kuntze, Rev. Gen. Fl. 1 (1891) 81, recognizes *Restiaria* Rumph. as the proper generic name for *Commersonia*, but this is inadmissible under the rules of the International Code of Botanical Nomenclature.

#### HELICTERES Linnaeus

**HELICTERES ISORA** Linn. Sp. Pl. (1753) 963.

*Fructus regis* Rumph. Herb. Amb. 7: 32, t. 17, f. 1.

This characteristic species is not represented in our Amboina collections. Burman, in the explanation of the Rumphian figure, p. 33, connects *Fructus regis* with *Helicteres isora* Linn., citing not the Linnean binomial, but the diagnostic sentence "Helicteres foliis cordatis, serratis, fructu composito contorto, Linnaei Spec. Plant. pag. 963." This reduction was accepted by Linnaeus, Amoen. Acad. 4 (1759) 136, and manifestly is the correct disposition of *Fructus regis*. Lamarck, Encycl. 3 (1789) 88, erroneously considered it to represent a variety of his *Helicteres ovata*, a Brazilian species; while Hasskarl, Pl. Jav. Rar. (1848) 308, Neue Schlüssel (1866) 189, adds *Isora corylifolia* Schott & Endl., a synonym of *Helicteres isora* Linn.

#### KLEINHOVIA Linnaeus

**KLEINHOVIA HOSPITA** Linn. Sp. Pl. ed. 2 (1763) 1365.

*Catti marus* Rumph. Herb. Amb. 3: 177, t. 113.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 292, September 8, 1913, margins of cultivated fields, altitude about 10 meters, locally known as *kinar*.

*Catti marus* was cited by Linnaeus in the original description of *Kleinhovia hospita*, but the type was an actual specimen from Java, collected by *Kleinhof*; the generic name is corrected by some botanists to *Kleinhovia*, but the original Linnean spelling is here retained. All authors subsequent to Linnaeus who have cited the Rumphian description and figure have followed Linnaeus in the reduction of *Catti marus*.

## STERCULIA Linnaeus

STERCULIA FOETIDA Linn. Sp. Pl. (1753) 1008.

*Clompanus molucanus* Raf. Sylva Tellur. (1838) 73 (type!).*Clompanus major* Rumph. Herb. Amb. 3: 168, t. 107.AMBOINA, Silali, Robinson *Pl. Rumph. Amb.* 293, in clearings at an altitude of about 150 meters, September 22, 1913.

This reduction, manifestly correct, was first made by Linnaeus, in Stickman Herb. Amb. (1754) 14, Amoen Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1277, Sp. Pl. ed. 2 (1763) 1431, and has generally been accepted by all botanists who have had occasion to cite the Rumphian figure and description. The Rumphian description and figure typify Rafinesque's genus and species *Clompanus molucanus*.

STERCULIA TREUBII Hochr. Pl. Bogor. Exsicc. (1904) 8.

*Clompanus minor* Rumph. Herb. Amb. 3: 169, t. 107 bis.

AMBOINA, Lateri, Robinson *Pl. Rumph. Amb.* 327, August 25, 1913; Amahoesoe, Robinson *Pl. Rumph. Amb.* 398, August 28, 1913; the former in forests at an altitude of about 250 meters, the latter on coral rocks at an altitude of about 10 meters; locally known as *choklat utan* and *saklat utan*; that is, wild chocolate, the seeds being used as a substitute for, or as an adulterant of, chocolate.

Linnaeus reduced this to *Sterculia balanghas* Linn., in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1277, Sp. Pl. ed. 2 (1763) 1430, and this disposition of the Rumphian plant has been accepted by most authors. However, it manifestly is incorrect, as *Sterculia balanghas* Linn. is known only from India and Ceylon. Smith placed the Rumphian species under his *Sterculia urceolata* in the original description of that species, Rees's Cyclop. 34 (1816) no. 3, in which he was followed by de Candolle, Prodr. 1 (1824) 482. Smith's material was from Honimoa Island, near Amboina, and his description, a copy of which has kindly been supplied to me by Sir David Prain, does not conform with my interpretation of *Clompanus minor* Rumph. The specimens cited above appear to be identical with *Sterculia treubii* Hochr., originally described from trees cultivated in the botanic garden at Buitenzorg, Java, their definite origin being unknown. The Rumphian figure is very poor, and from it alone one would hardly suspect the species described by Rumphius to be even closely allied to *Sterculia treubii* Hochr. The Rumphian description applies to the specimens much closer than the figure.

Under *Clompanus minor* several forms are discussed, which probably represent distinct species. These are *Clompanus ternatensis femina* Rumph. Herb. Amb. 3: 170; *C. ternatensis mas* Rumph.



*l. c.*, from Ternate; and *C. silvestris* Rumph. *l. c.* 171, from Ceram. These are entirely undeterminable from the material and data now available, and their identity must await the results of field work in the two islands mentioned.

#### ABROMA Jacquin

**ABROMA FASTUOSA** Jacq. Hort. Vind. 3 (1776) 3, *t.* 1.

*Abroma* (*Ambroma*) *augusta* Linn. f. Suppl. (1781) 341.

*Gossypium daemonis* Rumph. Herb. Amb. 4: 38, *t.* 14.

No representative of the genus *Abroma* occurs in our Amboina collection, yet *Gossypium daemonis* Rumph. is manifestly an *Abroma*. Linnaeus, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, erred in reducing it to his *Hibiscus zeylanicus*. Roxburgh, Fl. Ind. ed. 2, 3 (1832) 156, seems to be the first author to make the reduction to *Abroma*, by referring it to *Abroma augusta* Linn. f. The form described by Rumphius is manifestly what is currently named *Abroma fastuosa* R. Br.; that is, the form with spiny branchlets. *Abroma mollis* DC., Prodr. 1 (1824) 485, is described from specimens originating in the Moluccas, and is unquestionably the same as the spiny form currently named *Abroma fastuosa* R. Br. I have adopted the oldest name, *Abroma fastuosa* Jacq., but if this smooth-stemmed form be really specifically distinct from the form with the spiny stems, some adjustment of the synonymy will be necessary.

#### HERITIERA Dryander

**HERITIERA LITTORALIS** Dryand. in Ait. Hort. Kew. 3 (1789) 546.

*Atunus litorea* Rumph. Herb. Amb. 3: 95, *t.* 63.

This common and widely distributed strand plant is not represented in our Amboina collections. The reduction was first suggested by Lamarck, Encycl. 4 (1797) 228, and has generally been accepted by subsequent authors. Roxburgh, Fl. Ind. ed. 2, 3 (1832) 142, erroneously reduced it to *Heritiera minor* Roxb., and by others it has been referred to *Heritiera fomes* Ham. It is, however, unquestionably *Heritiera littoralis* Dryand.

### DILLENIACEAE

#### TETRACERA Linnaeus

**TETRACERA SCANDENS** (Linn.) comb. nov.

*Tragia scandens* Linn. in Stickman Herb. Amb. (1754) 18, Amoen. Acad. 4 (1759) 128 (type!).

*Delima hebecarpa* DC. Syst. 1 (1818) 407.

*Tetracera hebecarpa* Boerl. in Cat. Hort. Bot. Bogor. (1899) 3.

*Funis urens aspera* Rumph. Herb. Amb. 5: 13, *t.* 9.

This species is not represented in our Amboina collections,

yet *Funis urens aspera* Rumph. is unmistakably a *Tetracera* and apparently the form described by de Candolle as *Tetracera hebecarpa*, which some authors reduce to *Tetracera sarmentosa* Linn., and others treat as a variety of the latter species. The Rumphian figure and description are the whole basis of *Tragia scandens* Linn., a species that is not included in Index Kewensis. Linnaeus later, Sp. Pl. ed. 2 (1763) 1390, referred *Funis urens* Rumph. to *Tragia volubilis* Linn., in which he was followed by Burman f., Poiret, and Henschel. Baillon, Etud. Gén. Euphorb. (1858) 461, 463, referred it to *Tragia hirsuta* Blume. The description, and for that matter the figure also, is unmistakably *Tetracera* and has nothing to do with the euphorbiaceous genus *Tragia*.

**TETRACERA BOERLAGEI** sp. nov.

*Funis urens glabra* Rumph. Herb. Amb. 5: 13.

AMBOINA, Batoe gadjah, *Robinson Pl. Rumph. Amb. 485* (type), August 5, 1913, on trees at an altitude of about 200 meters.

Frutex scandens, ramulis junioribus adpresse hirsutis; foliis oblongis ad oblongo-ellipticis, coriaceis, nitidis, usque ad 11 cm longis, glabris vel minutissime scaberulis, integris vel obscurissime undulatis, basi rotundatis ad subacutis, apice acutis ad obtusis, nervis utrinque 10 ad 12; inflorescentiis anguste pyramidatis, leviter hirsutis; sepalis interioribus obovatis, rotundatis, 6 mm longis, carpellis 2 vel 3, dense hirsutis; folliculis 1 vel 2, rariter 3, oblongo-ovoideis, acuminatis, 8 ad 10 mm longis, parcissime hirsutis, in siccitate pallide olivaceis nitidisque, seminibus solitariis.

A scandent shrub, nearly glabrous except the very young branchlets and the inflorescence. Branches glabrous, reddish-brown, twisted, slender, tips of the young branchlets sparingly appressed-hirsute. Leaves oblong to oblong-elliptic, coriaceous, brittle, glabrous on both surfaces or very minutely and slightly scaberulous, in young leaves the midrib on the lower surface very slightly appressed-hirsute, 6 to 11 cm long, 2.5 to 5.5 cm wide, rather pale or brownish when dry, shining, base rounded to subacute, apex acute to obtuse, margins entire or very obscurely undulate; lateral nerves 10 to 12 on each side of the midrib, prominent, brown; petioles 1 cm long or less. Panicles terminal, narrowly pyramidal, up to 12 cm in length, sparingly hirsute with scattered, subappressed hairs, the branches few, distant, the lower ones 2 cm long or less. Fruiting calyx with five sepals, the outer ones broadly ovate, slightly hirsute, about 3 mm long, the inner two or three obovate,

rounded, about 6 mm long, their margins minutely ciliate. Carpels 2 or 3, narrowly ovoid, densely hirsute, the styles glabrous. Follicles 1 or 2, sometimes 3, narrowly oblong-ovate, acuminate, 8 to 10 mm long, pale olivaceous when dry, shining, with few, scattered, subappressed, rather long, stiff hairs, when fresh violet, turning brownish. Seeds solitary, broadly ovate, 2 to 2.5 mm long, the aril pale, membranaceous, loose, obovate, rounded, 3 mm long, entire or obscurely toothed, not lacerate.

This species is dedicated to Doctor J. G. Boerlage, who contracted a fever, while carrying on a botanical exploration of Amboina, which resulted in his death. It is manifestly allied to *Tetracera indica* Merr. (*T. assa* DC.), from which it differs in its smaller sepals and follicles, the latter being prominently acuminate and sparingly hirsute. From the only other endemic Amboina species, *Tetracera moluccana* Martelli, it differs in its much shorter petioles and smaller fewer-nerved leaves. While Rumphius's description is short and largely comparative with *Funis urens aspera*, the specimen cited above agrees with it in all particulars, and I consider it certainly to represent the Rumphian plant.

Ay-assa Rumph. Herb. Amb. 7: 20 has erroneously been referred by some authors to *Tetracera assa* DC., but the plant that Rumphius describes presents little in common with *Tetracera* and is certainly not referable to this genus. Christmann and Panzer, Pflanzensyst. 4 (1779) 40, t. 26, f. 1, after Houttuyn, Nat. Hist. Plantenk. 5 (1776) 275, referred the Rumphian plant to *Assa indica* Christm. & Panz., but the description was manifestly based on an actual specimen. The generic name was apparently taken from Rumphius, and de Candolle, Syst. 1 (1818) 402, selected *assa* as the specific name under *Tetracera*. The synonymy should be adjusted, for *Assa indica* presents the oldest valid name: *Tetracera indica* (Christm. & Panz.) comb. nov. (*Assa indica* Christm. & Panz. Pflanzensyst. 4 (1779) 40, t. 26, f. 1; *Tetracera assa* DC. Syst. 1 (1818) 402).

#### DILLENIA Linnaeus

DILLENIA ELLIPTICA Thunb. in Trans. Linn. Soc. 1 (1791) 200 (type!).  
Songium Rumph. Herb. Amb. 2: 140, t. 45.

No representative of this species occurs in our Amboina collections. *Dillenia elliptica* Thunb. was based wholly on the Rumphian figure and description. Martelli, in Beccari Malesia 3 (1887) 161, has redescribed *Dillenia elliptica* Thunb. from specimens collected in Celebes by Beccari, and doubtless this interpre-

tation of the species is correct. Rumphius states that *Songium* was known in Amboina as *aylassalinu* and as *ay macaninu*, in Celebes as *songi* and *songo*, and in Java as *sambu*. *Sempu* is one of the Javanese names for *Dillenia indica* Linn., the only white-flowered *Dillenia* reported from Java, so that the Javan reference included by Rumphius probably refers to *Dillenia indica* Linn. Linnaeus reduced both *t.* 45 and 46 of Rumphius to *Dillenia indica* Linn., in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1082, but later authors have followed Thunberg in the disposition of *t.* 45. Linnaeus was manifestly wrong in his reduction of *t.* 46, which is the following species. Miquel, Fl. Ind. Bat. 1<sup>2</sup> (1858) 11, erroneously reduced *Dillenia elliptica* Thunb. to *D. speciosa* Thunb., which is a synonym of *D. indica* Linn.

**DILLENIA SERRATA** Thunb. in Trans. Linn. Soc. 1 (1791) 201 (type!).

*Sangius mas et femina* Rumph. Herb. Amb. 2: 142, *t.* 46.

This species is not represented in our Amboina collections. *Dillenia serrata* Thunb. was based wholly on Rumphius and must be interpreted from the Rumphian figure and description. Linnaeus erred in reducing this plate to his *Dillenia indica*, in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1082. All authors since Thunberg have been content with calling it *Dillenia serrata*, although the exact status of the species is quite uncertain. It seems probable that more than one species is included in the Rumphian description, as he gives the range as Amboina, Celebes, and Java. It was said by Rumphius to be abundant in Celebes at Tambocco, near Macassar, and at Toletae. *Dillenia ochreatea* Teysm. & Binn. should be compared critically with *Dillenia serrata* Thunb., as it is probably identical with Thunberg's species.

## THEACEAE

### GORDONIA \* Ellis

#### GORDONIA RUMPHII sp. nov.

*Lignum muscosum s. Caju lapia* Rumph. Herb. Amb. 3: 203, *t.* 130.

AMBOINA, *Hitoe messen*, Robinson Pl. Rumph. Amb. 276 (type), November 1, 1913, in forests, altitude about 175 meters, locally known as *kayu lapia*.

Arbor circiter 10 m alta, floribus exceptis glabra; foliis oblongis, coriaceis, usque ad 14 cm longis, acutis vel obscure acuminatis, obscure crenulatis, basi cuneatis, nervis utrinque circiter 15; floribus solitariis, axillaribus, circiter 3 cm diametro.

\* Retained name, Vienna Code; *Lasianthus* Adans. (1763) is older.

sepalis suborbicularibus, coriaceis, extus cinereo-pubescentibus, petalis extus filamentisque basi adpresse pubescentibus.

A tree about 10 m high, quite glabrous except the inflorescence. Branches terete, reddish-brown, the branchlets smooth. Leaves oblong or oblong-elliptic, coriaceous, 8 to 14 cm long, 3.5 to 5.5 cm wide, brown or brownish-olivaceous, prominently shining when dry, base cuneate, apex acute to obscurely acuminate, margins obscurely crenulate, the lower surface minutely verruculose; lateral nerves irregular, the primary ones about 15 on each side of the midrib, slender, anastomosing; petioles up to 5 mm in length. Flowers solitary, axillary, white, about 3 cm in diameter, their pedicels about 1 cm long, slightly pubescent. Sepals suborbicular, coriaceous, rounded, cinereous-pubescent externally, about 7 mm in diameter. Petals obovate, rounded, less than 1.5 cm long, externally pubescent. Stamens numerous, the basal portions of the filaments appressed-pubescent. Ovary ovoid, densely appressed-pubescent with pale hairs, the style-arms 5, short, glabrous.

The identity of this plant with *Lignum muscosum* is certain. It bears the same native name as that cited by Rumphius for his plant, agrees well with his description, and fairly well with the rather crude plate. The identity of *Lignum muscosum* has not been previously determined, although Teysmann in a letter to Hasskarl considered it a species of *Gordonia*.\* Its alliance is with *Gordonia excelsa* Blume, from which it is readily distinguished by its entirely glabrous leaves and branchlets and its much smaller flowers.

*Caju lapia soyanansium* s. *Lignum muscosum parvifolium* Rumph. Herb. Amb. 3: 203, mentioned and casually described under *Caju lapia*, is apparently an entirely different plant. Hasskarl, Neue Schlüssel (1866) 67, mentions it, but suggests no identification of it. It is quite indeterminable from the data given by Rumphius.

#### TERNSTROEMIA † Mutis

**TERNSTROEMIA ROBINSONII** sp. nov.

*Ichthyoctonos montana* Rumph. Herb. Amb. 3: 214, t. 139.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb.* 275 (type), October 18, 1913, in forests, altitude about 350 meters locally known as *anaan mera*.

Arbor circiter 14 m alta, glabra; foliis oblongo-obovatis, crasse coriaceis, usque ad 25 cm longis, petiolatis, apice obscure latis-

\* See Hasskarl, Neue Schlüssel (1866) 67.

† Retained name, Vienna Code; *Mokof* Adans. (1763), *Taonabo* Aubl. (1775), *Dupinia* Scop. (1777), and *Hoferia* Scop. (1777) are older.

sime acuminatis ad obtusis, basi cuneatis, in siccitate purpureo-brunneis, nervis utrinque circiter 15; fructibus magnis, ellipsoideis, circiter 6 cm longis, calycis lobis valde incrassatis, sublignosis.

A tree about 14 m high, quite glabrous, the branches stout, grayish. Leaves purplish-brown when dry, somewhat shining, thickly coriaceous, 15 to 25 cm long, 6 to 11 cm wide, generally oblong-obovate sometimes oblong, apex obtuse to very broadly and obscurely blunt-acuminate, base narrowed, cuneate; lateral nerves about 15 on each side of the midrib, slender, distinct, very obscurely anastomosing, the reticulations obsolete or nearly so; petioles stout, about 1 cm long. Flowers not seen. Fruits ellipsoid, vermilion when fresh, dark-brown when dry, about 6 cm long, solitary, their pedicels stout, about 2 cm long, the calyx persistent, the lobes much thickened, rugose, somewhat woody when dry, more or less connate, the fruiting calyx 2 to 2.4 cm in diameter, the pericarp smooth, rather brittle, each fruit containing three, red or garnet-colored, 3 cm long pyrenes which are notched at the apex, each containing two seeds.

This species agrees sufficiently closely with Rumphius's description and with the rather crude figure. It is characterized by its relatively large leaves and large fruits and is most closely allied to *Ternstroemia megacarpa* Merr., of the Philippines; from which, however, it differs in many characters, notably in its calyx-lobes being more or less connate, very much thickened, and somewhat woody when dry and in its much shorter peduncles. The form described by Rumphius in the same chapter as *Ichthyoctonos litorea silvestris latifolia* is possibly also referable here.

## GUTTIFERAE

### MESUA Linnaeus

**MESUA FERREA** Linn. Sp. Pl. (1753) 515.

*Calophyllum nagassarium* Burm. f. Fl. Ind. (1768) 121.

*Nagassarium* Rumph. Herb. Amb. 7: 3, t. 2.

This species is not represented in our Amboina collections. *Nagassarium* was described by Rumphius from specimens cultivated in Java. It was originally reduced to *Mesua ferrea* Linn. by Murray, Syst. (1774) 525, certainly the correct disposition of it, and one that has been accepted by practically all authors. *Calophyllum nagassarium* Burm. f. is an exact synonym of *Mesua ferrea* Linn. and was based on Javan specimens with a reference to *Nagassarium* Rumph. as a synonym.

## CALOPHYLLUM Linnaeus

**CALOPHYLLUM INOPHYLLUM** Linn. Sp. Pl. (1753) 513.

*Balsamaria inophyllum* Lour. Fl. Cochinch. (1790) 470.

*Calophyllum bintagor* Roxb. Hort. Beng. (1814) 41 (type!), Fl. Ind. ed. 2, 2 (1832) 607.

*Bintangor maritima* Rumph. Herb. Amb. 2: 211, t. 71.

AMBOINA, Robinson Pl. Rumph. Amb. 480, September 22, 1913, along the seashore, locally known as *bintangor*.

This is certainly the correct disposition of *Bintangor maritima*, a characteristic tree of tropical seashores of the Old World, the reduction having been made first by Linnaeus, in Stickman Herb. Amb. (1753) 10, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1075, Sp. Pl. ed. 2 (1762) 732, and generally accepted by all authors. It is the type of *Calophyllum bintagor* Roxb. as originally published in Hort. Beng. (1814) 41.\*

**CALOPHYLLUM SOULATTRI** Burm. f. Fl. Ind. (1768) 121.

*Calophyllum spectabile* Willd. in Ges. Naturf. Fr. Berl. Mag. 5 (1811) 80.

*Bintangor silvestris* Rumph. Herb. Amb. 2: 216, t. 72.

*Bintangor silvestris altera* Rumph. l. c. 217.

AMBOINA, near houses, Robinson Pl. Rumph. Amb. 482, August 20, 1913, locally known as *sulatre*; Hitoë messen, Robinson Pl. Rumph. Amb. 481, in forests, altitude 150 meters, locally known as *bintangor utan*.

*Bintangor silvestris* was originally reduced by Linnaeus, through error, to the American *Calophyllum calaba* Linn., in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 121. Lamarck, Encycl. 1 (1785) 553, cites it, with doubt, under *Calophyllum acuminatum* Lam., which is supposed to be a synonym of *Calophyllum spectabile* Willd.=*C. soulattri* Burm. f. Choisy, in de Candolle, Prodr. 1 (1824) 562, cites it as a doubtful synonym of *Calophyllum spectabile* Willd.; while Hasskarl, Neue Schlüssel (1866) 42, adds *Calophyllum soulattri* Burm. f., which is the oldest valid specific name for this widely distributed species. Rumphius's figure is poor, but his description conforms closely to the characters of the species. *Bintangor silvestris altera* Rumph. (Pl. Rumph. Amb. 481), seems to be merely a form of *Calophyllum soulattri* Burm. f. with the leaves somewhat retuse at the apex.

**CALOPHYLLUM** sp.

*Bintangor montana* (*B. silvestris tertia*) Rumph. Herb. Amb. 2: 217.

AMBOINA, Hoetoemoeri road, Robinson Pl. Rumph. Amb. 483, September 30, 1913, in forests, altitude about 300 meters.

\* See Robinson in Philip. Journ. Sci. 7 (1812) Bot. 414.

The specimen certainly represents the plant that Rumphius briefly described as *Bintangor montana*, but it appears to be an undescribed species. Unfortunately no flowers are available, so that it is impossible to determine the true relationships of the form within the genus *Calophyllum*. The leaves are lanceolate, 6 to 10 cm long, 2 to 3 cm wide, acute at the base, and gradually narrowed in the upper one-half to the rather slender and blunt-acuminate apex. The fruits are less than 1 cm in diameter. The plant is entirely glabrous except the ferruginous-pubescent buds.

GARCINIA Linnaeus

GARCINIA AMBOINENSIS Spreng. Syst. Veg. 2 (1825) 448 (type!).

*Folium acidum majus* Rumph. Herb. Amb. 3: 58, t. 32.

This is a species of very doubtful status, based entirely on *Folium acidum majus* Rumph. Loureiro, Fl. Cochinch. (1790) 648, referred it to *Oxycarpus cochinchinensis* Lour.=*Garcinia cochinchinensis* Choisy, a species based on Cochin-China specimens, quite different from the Amboina plant described by Rumphius and known only from Indo-China.\* Doctor Robinson collected in Amboina typical *Garcinia dulcis* Kurz, which he thought probably represented *Folium acidum majus*. However, while agreeing with the figure in many respects and with the description in part, the discrepancies are too great to warrant the citation of this specimen as representing the Rumphian plant. Boerlage, Cat. Hort. Bot. Bogor. (1899) 75, refers to *Garcinia amboinensis* Spreng., two specimens, originating in Amboina and cultivated in the botanic garden at Buitenzorg. I have sterile specimens of one of these, "VI-F-11," which certainly agrees better with the original figure and description than does *Garcinia dulcis* Kurz, and which may represent *Folium acidum majus* in spite of certain discrepancies between the specimen and the figure and description.

GARCINIA DULCIS (Roxb.) Kurz in Journ. As. Soc. Beng. 43<sup>2</sup> (1874) 88.

*Xanthochymus dulcis* Roxb. Pl. Coromandel 3 (1819) t. 270.

*Mundo* Rumph. Herb. Amb. 1: 135.

AMBOINA, Hitoe lama, Robinson Pl. Rumph. Amb. 478, October 8, 1913, in forests, altitude about 175 meters.

The reduction of *Mundo* is based almost wholly on the native name, the brief description being entirely inadequate. It was from Java, and the native names *mundo*, *munder*, etc., are still

\* See Vesque in DC. Monog. Phan. 8 (1893) 449.



in use there for this species. The type of *Xanthochymus dulcis* Roxb. = *Garcinia dulcis* Kurz was from the Moluccas.

**GARCINIA CERAMICA** Boerl. Cat. Hort. Bot. Bogor. (1899) 76?

*Folium acidum minus* Rumph. Herb. Amb. 3: 60, t. 33.

*Folium acidum minus* Rumph. is almost certainly a species of *Garcinia*, and the above reduction is suggested. There are, however, some discrepancies between the characters indicated by Rumphius and the authentic specimens of Boerlage's species before me. Vesque, in DC. Monog. Phan. 8 (1893) 349, has suggested that it may be the same as *Garcinia picrorhiza* Miq., but to me it seems much closer to *G. ceramica* Boerl. than to *G. picrorhiza* Miq. Two forms are described, *majus* and *minus*, which probably represent different species. Rumphius's material was not from Amboina, but from Little Ceram and Xulabessi Islands.

**GARCINIA CAMBODIA** (Gaertn.) Desr. in Lam. Encycl. 3 (1791) 701.

*Mangostana cambogia* Gaertn. Fruct. 2 (1791?) 106.

*Gutta cambodja* Rumph. Herb. Amb. 2: 251.

The form discussed by Rumphius as *Gutta cambodja* is undoubtedly the same as *Garcinia cambogia* Desr., where it was placed by Hasskarl, Neue Schlüssel (1866) 45. Henschel referred it with doubt to *Cambogia gutta* Linn., but *Cambogia gutta* Linn. is a synonym of *Garcinia morella* Desr., not of *Garcinia cambogia* Desr.\*

**GARCINIA CELEBICA** Linn. in Stickman Herb. Amb. (1754) 7, Amoen.

Acad. 4 (1759) 119, Syst. ed. 10 (1759) 1043, Sp. Pl. ed. 2 (1762) 635 (type!).

*Garcinia rumphii* Pierre Fl. Forest. Cochinch. Énum. XIII, t. 77, A.

*Mangostana celebica* Rumph. Herb. Amb. 1: 134, t. 44.

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb. 323*, August 16, 1913, on banks of the river at low altitudes.

*Garcinia celebica* Linn. was based wholly on the Rumphian figure and description, which in turn were based on specimens from Macassar, Celebes, there known as *kras* and as *mangostaan utan*. Pierre, Fl. Forest Cochinch. Énum. XIII, not satisfied that specimens cultivated in the botanic garden at Buitenzorg, Java, under the name *Garcinia celebica* Linn. were correctly named, based his *Garcinia rumphii* on this material. I have a duplicate specimen of *Pierre 4168*, named *Garcinia rumphii*

\* See Trimen Fl. Ceyl. 1 (1893) 96.

Pierre, originating in the botanic garden at Buitenzorg, Java, which bears the native name *kiras*. Specimens of "VI-A-12a," "VI-A-16," and "VI-C-18a" from the Buitenzorg Botanic Garden certainly represent the same species, and agree well with the Rumphian figure and description of *Mangostana celebica*. Boerlage, Cat. Hort. Bot. Bogor. (1899) 69, concluded also that *Garcinia rumphii* Pierre is the same as *Mangostana celebica* Rumph. and is a synonym of *Garcinia celebica* Linn. The Amboina specimen collected by Robinson, cited above, should be critically compared with the closely allied *Garcinia porrecta* Wall. var. *schizogyna* Boerl. l. c. 69.

**GARCINIA MANGOSTANA** Linn. Sp. Pl. (1753) 443.

*Mangostana* Rumph. Herb. Amb. 1: 132, t. 43.

The mangosteen is not represented in our Amboina collections. *Mangostana* was one of the few species figured and described by Rumphius that was reduced by Linnaeus in the first edition of the Species Plantarum, where it is cited under *Garcinia mangostana* Linn. The reduction is certainly correct and has been followed by all authors.

**GARCINIA CORNEA** Murr. Syst. Veg. (1774) 368 (type!).

*Lignum corneum* Rumph. Herb. Amb. 3: 55, t. 30.

Not represented in our Amboina collections. *Lignum corneum* Rumph. is the whole basis of *Garcinia cornea* Murr., and the status of the species is now well known. It is a very characteristic species and occurs in cultivation in the botanic garden at Buitenzorg, Java; "VI-C-144" and "VI-C-144a" represent staminate and pistillate plants, both originating in Amboina. Murray has been consistently followed by all authors in this reduction of *Lignum corneum*. The two forms indicated and briefly described by Rumphius as *latifolium* and *angustifolium* are indeterminable from data now available. The former may be *Garcinia latissima* Miq., and the latter possibly *Garcinia dulcis* Roxb.

**GARCINIA PICRORHIZA** Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1866) 209.

*Pharmacum sagueri legitimum* Rumph. Herb. Amb. 2: 136, t. 44.

Boerlage, Cat. Hort. Bot. Bogor. (1899) 67, made this reduction, and I consider that he is correct, after a comparison of the Rumphian figure and description with authentic specimens of Miquel's species, duplicates from the numbers cited by Boerlage. Previous to Boerlage's reduction of the Rumphian plant

to *Garcinia picrorhiza* Miq., its position had not been recognized by any author.

**GARCINIA PICRORHIZA** Miq. var. **LIMONORHIZA** Boerl. Cat. Hort. Bot. Bogor. (1899) 68.

*Pharmacum limonicum* Rumph. Herb. Amb. 2: 137, t. 44, f. B.

This is, in all probability, correctly placed by Boerlage. It is in cultivation at Buitenzorg, but is not represented in Robinson's Amboina collections.

**GARCINIA** sp.?

*Vidoricum domesticum* Rumph. Herb. Amb. 1: 173.

This form is of wholly doubtful status. Henschel thought that it might be a species of *Bassia* or of *Diospyros*. I have suggested *Garcinia*, as Rumphius states that the bark yields a yellow juice, and his description otherwise conforms fairly well with the characters of *Garcinia*.

## DIPTEROCARPACEAE

### SHOREA Roxburgh

**SHOREA SELANICA** Blume Mus. Bot. 2 (1852) 33.

*Unona ? selanica* DC. Prodr. 1 (1824) 92 (type!).

*Englehardtia selanica* Blume Fl. Jav. 2 (1836) Jugl. 8 (type!).

*Hopea selanica* W. & A. Prodr. (1834) 85; Walp. Repert. 5 (1845) 128 (type!).

*Dammara selanica* Rumph. Herb. Amb. 2: 168, t. 56.

This species is not represented in our Amboina collections and is not credited to Amboina by Rumphius in the original description. The Rumphian description and figure are the whole basis of *Unona selanica* DC., *Englehardtia selanica* Blume, and *Hopea selanica* W. & A., and it is to be noted that *Englehardtia selanica* Blume and *Shorea selanica* Blume were published without reference to the earlier *Unona selanica* DC. In transferring the species to *Shorea*, Blume adds a short description, probably from Moluccan specimens. Burck, Ann. Jard. Bot. Buitenz. 6 (1887) 216, gives a more ample description based on specimens collected by Reinwardt and by Teysmann and on plants cultivated in the botanic garden at Buitenzorg, Java.

**SHOREA SELANICA** Blume var. **LATIFOLIA** Blume Mus. Bot. 2 (1852) 33.

*Dammara selanica femina* Rumph. Herb. Amb. 2: 169 (type!).

Blume originally reduced *Dammara selanica femina*, by error, to *Englehardtia spicata* Blume Fl. Jav. 2 (1836) Jugl. 8, followed by Hasskarl's equally erroneous reduction of it to *Englehardtia*

*acerifolia* Blume. Later Blume made it the type of *Shorea selanica* Bl. var. *latifolia* Bl., which is perhaps the correct disposition of it. The forms described in this chapter as *Caju cawan* e Java and *Dammar leomelaena* are undeterminable; the latter is probably a species of *Canarium*.

#### DRYOBALANOPS Gaertner

**DRYOBALANOPS AROMATICA** Gaertn. Fruct. 3 (1805) 49, t. 186.

*Arbor camphorifera* II *occidentalis* Rumph. Herb. Amb. 7: 65, 68.

The general discussion of camphor includes the true camphor, *Cinnamomum camphora* T. Nees & Eberm., as well as that produced in Malaya, the resin of *Dryobalanops aromatica* Gaertn. This reduction was made by Blume, Mus. Bot. 2 (1851) 38, and by de Vriese, who placed it under *Dryobalanops camphora* Colebr., a synonym of *D. aromatica* Gaertn.

#### DIPTEROCARPUS Gaertner

**DIPTEROCARPUS** sp.?

*Arbor koring* Rumph. Herb. Amb. 2: 74.

The reduction of *Arbor koring* to *Dipterocarpus* is based wholly on the observation made by Hamilton that the oil produced by the tree was secured by the same method as that used in gathering the oil of *Dipterocarpus*. The probabilities are very great that this is the correct disposition of *Arbor koring*. No further reduction of it is possible from the data given by Rumphius.

### BIXACEAE

#### BIXA Linnaeus

**BIXA ORELLANA** Linn. Sp. Pl. (1753) 512.

*Pigmentaria* Rumph. Herb. Amb. 2: 79, t. 19.

*Pigmentaria* Rumph. was first reduced to *Bixa orellana* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 120, Syst. ed. 10 (1759) 1074, which is manifestly the correct disposition of it and has been accepted by all authors.

### FLACOURTIACEAE

#### PANGIUM Reinwardt

**PANGIUM EDULE** Reinw. in Syll. Ratisb. 2 (1828) 12.

*Pangium* Rumph. Herb. Amb. 2: 182, t. 59.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb.* 212, October 20, 1913. in light forests, altitude about 75 meters, locally known as *pangi*.

The reduction of *Pangium* made by Reinwardt in the original publication of the genus and species has been followed by all authors and is manifestly the correct disposition of it. The species is of very wide distribution in the Malayan region.

## FLACOURTIA L'Héritier

FLACOURTIA INDICA (Burm. f.) comb. nov.

*Gmelina indica* Burm. f. Fl. Ind. (1768) 132, t. 39, f. 5.

*Mespilus sylvestris* Burm. Index Univ. Herb. Amb. 7 (1755) [18] (type!), non Burm. l. c. [14].

*Flacourtia sepiaria* Roxb. Pl. Coromandel 1 (1795) 48, t. 68.

*Flacourtia ramontchi* L'Hérit. Stirp. Nov. (1784-85) 59, t. 30, 31.

*Spina spinarum* I mas Rumph. Herb. Amb. 7: 36, t. 19, f. 1, 2.

*Spina spinarum* II femina Rumph. l. c. 37.

This species is not represented in our Amboina collections. Rumphius states, however, that the plant was an introduced one there, originating in Java, where it was common. *Spina spinarum* Rumph. is the whole basis of *Mespilus sylvestris* Burm., as published on page 18 of his Index Universalis; it is not included in Index Kewensis. The name is invalid, however, because Burman published the same binomial on page 14 of the same work for an entirely different species, *Carissa carandas* Linn. (see p. 425). I consider that the form figured and described by Rumphius is the same as *Flacourtia sepiaria* Roxb., from which I cannot distinguish *F. ramontchi* L'Hérit. Linnaeus cites the first figure as a synonym of *Carissa spinarum* Linn., but the plant actually described and hence the type of the species is a true *Carissa*; figure 3 of the same plate, the type of *Mespilus sylvestris* Burm. Index Universalis [14] non [18], is apparently a true *Carissa*. Linnaeus, in his erroneous reduction of *Spina spinarum* Rumph., was followed by Murray, Lamarck, Willdenow, Roemer and Schultes, Dietrich, and Pritzel. Loureiro, Fl. Cochinch. (1790) 634, cites the Rumphian species under *Stigmarota jangomas* Lour.=*Flacourtia jangomas* (Lour.) Steud. By other authors it has been referred to *Damnacanthus indicus* Gaertn., of the Rubiaceae; to *Flacourtia jangomas* Steud.; to *Roumea* sp.=*Flacourtia*; and to *Flacourtia cataphracta* Roxb. It is possible that *Spina spinarum* II femina Rumph. represents a species distinct from *Spina spinarum* I mas. Burman's *Gmelina indica* supplies the oldest valid specific name for the species and is here adopted. Burman's type was from Java, for which he cites the Javanese name *doery roekan*.

## HOMALIUM Jacquin

**HOMALIUM FOETIDUM** (Roxb.) Benth. in Journ. Linn. Soc. Bot. 4 (1860) 37.

*Ludia foetida* Roxb. Hort. Beng. (1814) 38, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 508.

*Blackwellia foetida* Wall. Cat. (1831) no. 4899, *nomen nudum*, Delessert Ic. 3 (1837) 32, t. 53.

*Blackwellia moluccana* Blume Mus. Bot. 2 (1852) 27 (type!).

*Metrosideros molucca mas* Rumph. Herb. Amb. 3: 25, t. 11.

Nothing resembling this species is represented in our Amboina collections. *Homalium foetidum* Benth. includes more than one species, the Mergui specimen cited being apparently *Homalium griffithianum* Kurz. It is to be noted that Benthham does not cite *Ludia foetida* Roxb. as a synonym of *Homalium foetidum* Benth. He based his species on *Blackwellia foetida* Wall., but Wallich quotes *Ludia foetida* Roxb. as a synonym; the type of *Ludia foetida* Roxb. was a specimen cultivated in Calcutta, originating in Amboina. In Index Kewensis *Ludia foetida* Roxb. is reduced to *Flacourtia sumatrana* Planch. *Blackwellia moluccana* Blume is based wholly on the Rumphian description and figure. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 47, thought that *Metrosideros molucca mas* might be a *Helicia*, but this suggested reduction is manifestly entirely wrong.

## CARICACEAE

## CARICA Linnaeus

**CARICA PAPAYA** Linn. Sp. Pl. (1753) 1036.

*Papaya vulgaris* Lam. Encycl. 5 (1804) 2.

*Papaja mas et femina* Rumph. Herb. Amb. 1: 145, t. 50, 51.

Rumphius's illustrations of the common papaya are excellent. The first reduction to *Carica papaya* Linn. was made by Linnaeus, in Stickman Herb. Amb. (1754) 7, Amoen. Acad. 4 (1759) 119, which is manifestly the correct disposition of *Papaja* Rumph. and is generally accepted by all authors.

## DATISCACEAE

## OCTOMELES Miquel

**OCTOMELES SUMATRANA** Miq. Fl. Ind. Bat. Suppl. (1860) 336.

*Octomeles moluccana* Teysm. & Binn. ex Hassk. in Abhandl. Naturf. Gesellsch. Halle 9 (1866) 208 (Neue Schlüssel 66) (type!).

*Octomeles moluccana* Warb. in Engl. Bot. Jahrb. 13 (1891) 386.

*Palacca* Rumph. Herb. Amb. 3: 195, t. 125.

Teysmann and Binnendyck, quoted by Hasskarl, Neue

Schlüssel (1866) 66, correctly reduced *Palacca* Rumph. to *Octomeles*, but considered the species to be distinct from *O. sumatrana* Miq., calling it *Octomeles moluccana*. Warburg later considered that the oriental Malayan form was distinct from the one found in the Sunda Islands and described it as new under *Octomeles moluccana* Warb. I believe that K. Schumann and Lauterbach were correct in reducing *Octomeles moluccana* Warb. to *O. sumatrana* Miq. At any rate, if two species are represented, Teysmann and Binnendyck should be quoted as the authority for *Octomeles moluccana*, for although they published no description, their name is typified by *Palacca* as described and figured by Rumphius.

## BEGONIACEAE

## BEGONIA Linnaeus

**BEGONIA TUBEROSA** Lam. Encycl. 1 (1785) 393 (type!), excl. syn. *B. capensis* Linn.

*Diploclinium tuberosum* Miq. Fl. Ind. Bat. 1<sup>a</sup> (1856) 685.

*Empetrum acetosum* l. album Rumph. Herb. Amb. 5: 457, t. 169, f. 2.

AMBOINA, Batoe gadjah and Batoe merah, *Robinson Pl. Rumph. Amb. 65*, August, 1913, altitude 15 to 200 meters, on rocks.

*Empetrum acetosum* was originally reduced by Linnaeus to *Begonia obliqua* Linn., in Amoen. Acad. 4 (1759) 133, Sp. Pl. ed. 2 (1763) 1497, in which he was followed by Burman f., Fl. Ind. (1768) 222. This disposition of it was entirely erroneous, as *Begonia obliqua* Linn. is an American species. Lamarck, Encycl. 1 (1785) 393, made it the type of his *Begonia tuberosa*. It is true that Lamarck erroneously gives as the first citation *Begonia capensis* Linn., but that he intended the Rumphian figure to typify his plant is manifest from his specific name. This was taken from the tuber-like lower part of the plant as shown in Rumphius's figure, which, however, was intended merely to represent a portion of the rock on which the plant grows. De Candolle, Prodr. 15<sup>a</sup> (1864) 323, mentions this tuber-like portion of the drawing thus: "Ex ic. Rumphii tuber 3 poll. crassum et habitus totus Cyclaminis."

Possibly referable here is *Robinson Pl. Rumph. Amb. 66* from Lateri and Koesoekoesoe sereh, August and September, 1913, on rocks, with smaller leaves than No. 65, cited above, in which the leaves are distinctly purplish when dry. Doctor Robinson thought this might represent *Empetrum acetosum rubrum* Rumph. Herb. Amb. 5: 457, but Rumphius describes this form as having leaves a palm wide, which is not true of No. 66.

I am unable definitely to place the forms very briefly described by Rumphius under *Empetrum acetosum* II *rubrum* and III *cordatum*. The former Hasskarl, *Neue Schlüssel* (1866) 146, thought might be referable to *Begonia* (*Diploclinium*) *rubrum* Blume and the latter to *Begonia mollis* A. DC. It seems probable that *Empetrum acetosum* II *rubrum* was merely a broad-leaved form of *E. acetosum* I *album* = *Begonia tuberosa* Lam., but *E. acetosum* III *cordatum*, described as pilose, probably represents an entirely different species, not, however, represented in our Amboina collections.

## CACTACEAE

### OPUNTIA Tournefort

#### OPUNTIA sp.

*Ficus indica* Rumph. Herb. Amb. 4: 89.

The description is very imperfect, but probably applies to *Opuntia*. Hasskarl, *Neue Schlüssel* (1866) 80, thought that it might be *Opuntia dillenii* Haw.

## THYMELAEACEAE

### GYRINOPSIS Decaisne

**GYRINOPSIS BRACHYANTHA** Merr. in *Philip. Journ. Sci.* 7 (1912) Bot. 313.

*Cortex filarius* Rumph. Herb. Amb. 7: 13.

AMBOINA, Way uri, *Robinson Pl. Rumph. Amb.* 274, September 9, 1913. in forests, altitude about 100 meters, locally known as *melowassi*.

The specimen of *melowassi* is in fruit, but is apparently identical with the Luzon species described by me as *Gyrinopsis brachyantha*. It differs from *G. cumingiana* Dcne. not only in its shorter flowers, but also in the venation of its leaves, all the veins being slender and indistinct, the primary not more prominent than the secondary ones. Hasskarl, *Neue Schlüssel* (1866) 186, cites *Cortex filarius* as a synonym of *Anassera moluccana* Pers. and of *A. rumphii* Span.; but Persoon, *Syn.* 1 (1805) 265, and Lamarck before him, under *Anassera moluccana* Lam., *Ill.* 2 (1797) 40, cites not *Cortex filarius* Rumph. but *Cortex foetidus* Rumph. Herb. Amb. 7: 12, t. 7, which is a *Pittosporum*. The correct status of *Cortex filarius* Rumph. has not been previously indicated. The genus *Gyrinopsis* has been reported only from the Philippines, but apparently also occurs in Borneo.



## AQUILARIA \* Lamarck

AQUILARIA MALACCENSIS Lam. Encycl. 1 (1783) 49.

*Aquilaria secundaria* DC. Prodr. 2 (1825) 59 (type!).

*Aquilaria ovata* Cav. Diss. (1790) 377, t. 224.

*Agallochum secundarium* (coinamense et malaicense) Rumph. Herb. Amb. 2: 34, 35, t. 10.

This species was not described from Amboina material. It is apparently the same as *Aquilaria malaccensis* Lam. Lamarck cites the Rumphian description and figure in his original description. The figure is cited by Loureiro, Fl. Cochinch. (1790) 267, under *Aloexylum agallochum* Lour., but with a reference to *Agallochum* Rumph. Herb. Amb. 2: 29=*Aquilaria agallocha* Roxb., not to *Aquilaria secundarium* Rumph. Roxburgh's *Aquilaria agallocha* is a species published quite independently of *Aloexylum agallochum* Lour. and is hence not to be interpreted by Loureiro's description. From the characters assigned by Loureiro to *Aloexylum*, his plant seems to belong in the *Leguminosae*, although it has very generally been considered to be the same as *Aquilaria agallocha* Roxb. *Aquilaria secundaria* DC. was based wholly on Rumphius's description and figure of *Agallochum secundarium* and is a synonym of *Aquilaria malaccensis* Lam.

AQUILARIA AGALLOCHA Roxb. Hort. Beng. (1814) 33, *nomen nudum*, DC. Prodr. 2 (1825) 59; Roxb. Fl. Ind. ed. 2, 2 (1832) 422.

*Agallochum s. Calambac* Rumph. Herb. Amb. 2: 29.

The status of *Agallochum* or *Calambac* is doubtful. It was not described from Amboina material, but probably is the same as the Indian *Aquilaria agallocha* Roxb. *Agallochum* "*officinarum* Lam.," cited as Encycl. 1 (1783) 48 and listed in Index Kewensis as a synonym of *Aquilaria malaccensis* Lam. l. c. 49, I consider has no status, as Lamarck certainly did not intend a publication, but merely discussed the plant under Bauhin's name, *Agallochum officinarum* Bauh. Pin. (1623) 393.

## LYTHRACEAE

## LAGERSTROEMIA Linnaeus

LAGERSTROEMIA INDICA Linn. Syst. ed. 10 (1759) 1076 (type!), Sp. Pl. ed. 2 (1763) 734.

*Lagerstroemia chinensis* Linn. Amoen. Acad. 4 (1759) 137 (type!).

Tsjinkin Rumph. Herb. Amb. 7: 61, t. 28, f. 1.

This species is not represented in our Amboina collections.

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\* Retained name, Vienna Code; *Agallochum* Lam. (1783) is older.

The plate is a fair representation of the common and well-known *Lagerstroemia indica* Linn. It is the whole basis of *Lagerstroemia indica* Linn. and of *L. chinensis* Linn. as originally published, both in the year 1759. As to priority of publication I have no means of determining between volume four of the *Amoenitates Academicae* and the tenth edition of the *Systema*, but as Linnaeus himself abandons the name *Lagerstroemia chinensis* in favor of *L. indica* and as *L. indica* Linn. is the name universally used for this well-known species, it should be maintained. *Lagerstroemia chinensis* Linn. does not appear in *Index Kewensis*, but *Lagerstroemia chinensis* Lam. *Encycl.* 3 (1791) 375, also typified by *Tsjinkin* of Rumphius, is listed there as a synonym of *L. indica* Linn.

#### LAWSONIA Linnaeus

LAWSONIA INERMIS Linn. *Sp. Pl.* (1753) 349.

*Cyprus* Rumph. *Herb. Amb.* 4: 42, t. 17.

The common henna is not represented in our Amboina collections. *Cyprus* was originally reduced to *Lawsonia spinosa* Linn. by Linnaeus, in *Stickman Herb. Amb.* (1754) 15, *Amoen. Acad.* 4 (1753) 126, *Sp. Pl.* ed. 2 (1762) 498, which is a synonym of *Lawsonia inermis* Linn. Some authors have referred *Cyprus* to *Lawsonia alba* Lam., *L. inermis* var. *spinosa* Pers., and *L. alba* var. *spinosa* Lam., but these are all synonyms of the common and widely distributed *Lawsonia inermis* Linn.

#### PEMPHIS Forster

PEMPHIS ACIDULA Forst. *Char. Gen.* (1776) 68, t. 34.

*Lythrum pemphis* Linn. *f. Suppl.* (1781) 249.

*Aegiceras ferreum* Blume *Bijdr.* (1825) 693 p. p. quoad syn. Rumph.

*Mangium ferreum mas* Rumph. *Herb. Amb.* 3: 120, t. 79, excl. f. A, B.

*Mangium porcellanicum* Rumph. *Herb. Amb.* 3: 126, t. 84.

This common and widely distributed strand plant is not represented in our Amboina collections. *Mangium ferreum mas* as figured by Rumphius presents a flowering branch of *Pemphis acidula* Forst., but the additional figures A and B are *Aegiceras*. This mixture of the two species was first pointed out by Teysmann, as quoted by Hasskarl, *Neue Schlüssel* (1866) 57. The form described by Rumphius, l. c., as *Mangium ferreum femina* is probably merely *Pemphis acidula* Forst. *Mangium porcellanicum* Rumph. was first reduced to *Lythrum pemphis* Linn. by Retzius, *Obs.* 5 (1789) 4, and as *Pemphis acidula* Forst. this is the correct disposition of it.

## SONNERATIACEAE

## SONNERATIA \* Linnaeus f.

SONNERATIA ALBA Sm. in Rees. Cycl. 33 (1816) no. 2.

*Mangium caseolare album* Rumph. Herb. Amb. 3: 111, t. 73.

AMBOINA, Wakeroe, and at Ayer putri, *Robinson Pl. Rumph. Amb. 290*, July 28 and October 17, 1913, along tidal streams, locally known as *mangi mangi*. "Flower apetalous, sepals lilac inside."

*Mangium caseolare album* was originally referred by Linnaeus to *Rhizophora caseolaris*, in Stickman Herb. Amb. (1754) 13, Linnaeus overlooking the fact that at least two distinct species were considered by Rumphius, one having flowers without petals, and one with petals. I have not seen the original description of *Sonneratia alba* Smith, which may have been based in part on Rumphius. Succeeding authors, de Candolle, Don, Blume, and Miquel, cite the Rumphian plate as representing *Sonneratia alba* Smith.

SONNERATIA CASEOLARIS (Linn.) Engl. in Engl. & Prantl Nat. Pflanz.-enfam. Nachtr. 1 (1897) 261.

*Rhizophora caseolaris* Linn. p. p., in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 123, Syst. ed. 10 (1759) 1043, Sp. Pl. ed. 2 (1763) 635 (type!).

*Sonneratia acida* Linn. f. Suppl. (1781) 252.

*Sonneratia pagatpat* Blanco Fl. Filip. (1837) 424.

*Mangium caseolare rubrum* Rumph. Herb. Amb. 3: 112. t. 74.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 291*, October 29, 1913, at the back of a mangrove swamp, "petals present, lilac."

This is *Rhizophora caseolaris* Linn. in part only. The original description in Stickman, Herb. Amb. (1754) 13, is as follows: "73. 75. *Mangium caseolare* [=] *Rhizophora caseolaris*, foliis ovatis obtusis, floribus solitariis, fructibus orbiculatis depressis mucronatis." The figures refer to plates 73 to 75 of Rumphius, inclusive. As noted above t. 73 represents the apetalous *Mangium caseolare album* Rumph. and is *Sonneratia alba* Smith; t. 74, however, represents *Mangium caseolare rubrum* Rumph., definitely described as having petals. Perhaps on a very strict interpretation of types, t. 73 should represent the plant now known as *Sonneratia caseolaris* (Linn.) Engl., in which case the name *Sonneratia caseolaris* would have to be applied to the plant now known as *Sonneratia alba* Sm., and what is here interpreted as *Sonneratia caseolaris* would have

\* Retained name, Vienna Code; *Blatti* Adans. (1763) and *Pagapate* Sonn. (1776) are older.

to be called *Sonneratia pagatpat* Blanco. Botanists very generally, since the publication of *Sonneratia acida* Linn. f. in 1781, have referred to it *Mangium caseolare rubrum* of Rumphius, including *tt.* 74, 75; but *Sonneratia acida* Linn. f. is merely a synonym of *Sonneratia caseolaris* (Linn.) Engl., as interpreted by Engler and as interpreted here.

## PUNICACEAE

### PUNICA Linnaeus

**PUNICA GRANATUM** Linn. Sp. Pl. (1753) 472.

*Malum granatum* Rumph. Herb. Amb. 2: 94, *t.* 24, *f.* 1.

The common pomegranate is not represented in our Amboina collections, although it is found in scattered cultivation throughout the Malayan region. *Malum granatum* was first reduced to *Punica granatum* Linn. by Linnaeus, in Stickman Herb. Amb. (1753) 9, Amoen. Acad. 4 (1759) 120, Syst. ed. 10 (1759) 1056, which is manifestly the correct disposition of it.

## LECYTHIDACEAE

### BARRINGTONIA \* Forster

**BARRINGTONIA ASIATICA** (Linn.) Kurz in Journ. As. Soc. Beng. 45<sup>1</sup> (1876) 131; 46<sup>2</sup> (1877) 70.

*Mammea asiatica* Linn. Sp. Pl. (1753) 512.

*Barringtonia speciosa* Forst. Char. Gen. (1776) 76 *t.* 38, *f.* A-C; Linn. f. Suppl. (1781) 312.

*Agasta asiatica* Miers in Trans Linn. Soc. Bot. 1 (1875) 61.

*Agasta indica* Miers l. c. 63.

*Butonica rumphiana* Miers l. c. 68.

*Butonica* Rumph. Herb. Amb. 3: 179, *t.* 114.

AMBOINA, *Robinson Pl. Rumph. Amb.* 466, September 16, 1913, along the river near the town of Amboina.

*Butonica* was first reduced to *Barringtonia speciosa* by the younger Linnaeus, Suppl. (1781) 312, which has been followed by all authors except Miers. The latter retains *Barringtonia speciosa* Forst. as the sole representative of the genus which he confined to Polynesia and removed the Indo-Malayan forms from *Barringtonia* as *Agasta asiatica* (Linn.) Miers and *A. indica* Miers. He has not been followed by subsequent authors, the general conclusions regarding Miers's proposed classification, in which I concur, being that his three species are all merely forms of the common and widely distributed strand plant, *Barringtonia asiatica* (Linn.) Kurz. The type of the Linnean species, *Mammea asiatica*, was collected by Osbeck on a small

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\* Retained name, Vienna Code; *Huttum* Adans. (1763) is older.

island near the western end of Java. *Butonica rumphiana* Miers is certainly identical with *Mammea asiatica* Linn.=*Barringtonia asiatica* Kurz.

**BARRINGTONIA RACEMOSA** (Linn.) Blume ex DC. Prodr. 3 (1828) 288; Roxb. Fl. Ind. ed. 2, 2 (1832) 634.

*Eugenia racemosa* Linn. Sp. Pl. (1753) 471.

*Stravadia alba* Pers. Syn. 2 (1807) 30.

*Stravadium album* DC. Prodr. 3 (1828) 289.

*Barringtonia alba* Blume in Fl. des Serres I 7 (1851-52) 23.

*Barringtonia alba* Kostel. Allgem. Med. Pharm. Fl. 4 (1835) 1536.

*Stravadium rubrum* DC. Prodr. 3 (1828) 289, p. p., quoad syn. Rumph.

*Butonica terrestris* Miers in Trans. Linn. Soc. Bot. 1 (1875) 69.

*Barringtonia rubra* Blume Fl. des Serres I 7 (1851-52) 23.

*Butonica rubra* Miers in Trans. Linn. Soc. Bot. 1 (1875) 70.

*Barringtonia inclyta* Miers in Trans. Linn. Soc. Bot. 1 (1875) 71.

*Butonica terrestris rubra* Rumph. Herb. Amb. 3: 181 ! (*t. 115?*).

*Butonica terrestris alba* Rumph. Herb. Amb. 3: 181, *t. 116*.

AMBOINA, Paso, *Robinson Rumph. Amb.* 467, November 25, 1913, near the beach.

This much-named species is widely distributed along and near the seashore from India to Malaya and Polynesia. Miers has attempted with little success to distinguish several species. As the proper authority for *Barringtonia racemosa*, I have selected Blume (1828) in preference to Roxburgh, as Roxburgh's original use of the name, Hort. Beng. (1814) 52, is a *nomen nudum*.

In previous reductions of the Rumphian descriptions and figures, practically all authors have assumed that two species were involved. *Butonica terrestris alba* was originally reduced by Linnaeus to *Eugenia racemosa* Linn., in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 1055, Sp. Pl. ed. 2 (1762) 673; but other authors have reduced it to *Barringtonia acutangula* Gaertn., to *Stravadia alba* Pers., to *Barringtonia alba* Kostel., to *Butonica alba* Miers, etc. The description and the figure apply unmistakably to *Barringtonia racemosa* (Linn.) Blume as here interpreted.

The description of *Butonica terrestris rubra* Rumph. is unmistakably *Barringtonia racemosa* (Linn.) Blume, as here interpreted, but the figure, which is poor, may represent another species, possibly *Barringtonia acutangula* Gaertn. In Rumphius's description note:

Folia \* \* \* unum vel sesquipedem longi, immo longiora \* \* \* palmam nempe lata, vel paulo latiora \* \* \*. Flores ex longo, tenui, & dependente petiolo, binos pedes longo \* \* \* huic viridia insident capita instar Olivarum tenerarum, per illum laxè dispersa, quae sese aperiant in bina vel terna crassa & concava petala [sepals].

The description otherwise applies to *Barringtonia racemosa*, not to *B. acutangula* Gaertn., to which it has been reduced by many authors. It was originally reduced by Linnaeus to *Eugenia acutangula* Linn., in Stickman Herb. Amb. (1754) 14, Amoen. Acad. 4 (1759) 124, Sp. Pl. ed. 2 (1762) 673; by Lamarck, Encycl. 3 (1789) 197, to *Eugenia racemosa* Linn.; by Loureiro, Fl. Cochinch. (1790) 410, to *Meteoros coccineus* Lour., which is a possible synonym of *Barringtonia racemosa* Blume; and by other authors to *Barringtonia acutangula* Gaertn., to *Stravadia rubra* Pers., to *Stravadium rubrum* DC., to *Barringtonia rubra* Blume, and finally by Miers to *Butonica terrestris* Miers.

### RHIZOPHORACEAE

The *Rhizophoraceae* described and figured by Rumphius are obscure, and the actual status of the several species involved is susceptible of various interpretations. The species actually represented in our Amboina collections are the forms commonly known as *Bruguiera eriopetala* W. & A., *B. caryophylloides* Blume, *B. parviflora* W. & A., and *Rhizophora conjugata* Linn. By a strict interpretation of types, following the principles of priority, most of these names must be discarded, *Bruguiera eriopetala* W. & A. becoming *B. sexangula* (Lour.) Spreng., *B. caryophylloides* Blume becoming *B. cylindrica* (Linn.) Blume, and *Rhizophora conjugata* auct., non Linn., becoming *R. candelaria* DC. Species apparently described by Rumphius, but not included in the Amboina collections at present available for study, are apparently *Ceriops tagal* (Perr.) C. B. Rob. (*C. candolleana* Arn.) and *Bruguiera conjugata* (Linn.) Merr. (*B. gymnorhiza* Lam.). A number of species and synonyms must be interpreted wholly or in part from the Rumphian figures and descriptions. An attempt has here been made to select the earliest valid specific name in each case and to adjust the synonymy, but a future monograph of the group, based on very comprehensive collections, may modify some of these conclusions.

### CERIOPS Arnott

**CERIOPS TAGAL** (Perr.) C. B. Rob. in Philip. Journ. Sci. 3 (1908) Bot. 306.

*Rhizophora tagal* Perr. Mém. Soc. Linn. Paris 3 (1824) 138.

*Rhizophora timoriensis* DC. Prodr. 3 (1828) 32.

*Ceriops candolleana* Arn. in Ann. Nat. Hist. 1 (1838) 363.

**Mangium caryophylloides** II *parvifolium* et III *latifolium* Rumph. Herb. Amb. 3: 119.

No representative of the genus *Ceriops* occurs in our Amboina

collections. The suggested reduction of the two forms described under *Mangium caryophylloides* Rumph. is after Hasskarl, Neue Schlüssel (1866) 57, but *Ceriops tagal* is an older name than *C. candolleana* Arn. Blume, Mus. Bot. 1 (1849) 143, suggests that *Mangium caryophylloides* II may be the same as *Ceriops zippeliana* Blume, and that *Mangium caryophylloides* III may be the same as *Ceriops forsteniana* Blume, but both of Blume's species are apparently merely forms of the common and widely distributed *Ceriops tagal* C. B. Rob. Blume also suggests that *Mangium minus* Rumph., Herb. Amb. 3: 106 *quoad descr., excl. t. 69*, may be *Ceriops zippeliana* Blume, which may be the correct disposition of the description; the plate is considered under *Bruguiera conjugata* (Linn.) Merr. and under *B. cylindrica* (Linn.) Blume (p. 388).

## RHIZOPHORA Linnaeus

RHIZOPHORA CANDELARIA DC. Prodr. 3 (1828) 32 (type!).

*Rhizophora conjugata* auct. plur., non Linn.

*Rhizophora apiculata* Blume Enum. 1 (1828) 91.

*Mangium candelarium* Rumph. Herb. Amb. 3: 108, t. 71, 72.

AMBOINA, near the town of Amboina, Robinson Pl. Rumph. Amb. 266, July 26, 1913, along tidal streams, locally known as *mangi mangi*.

While both plates given by Rumphius are very crude, they unmistakably represent the form with short peduncles bearing usually two flowers. The description, however, may include also the allied *Rhizophora mucronata* Lam., which is distinguished by its longer peduncles and more numerous flowers. By Linnaeus it was erroneously reduced to the American *Rhizophora mangle*, in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 123, Syst. ed. 10 (1759) 1043, Sp. Pl. ed. 2 (1763) 634, in which he was followed by Lamarck, Willdenow, Burman f., Roxburgh, and other authors. Blume, Mus. Bot. 1 (1849) 132, placed it under *Rhizophora mucronata* Lam. with the comment "descriptio satis bona, figurae minus rectus!", while Walpers, Repert. 2 (1843) 70, placed it under *Rhizophora conjugata* Linn. *Rhizophora candelaria* DC. is a composite species to be interpreted from *Mangium candelarium* Rumph. and *Pee-kandel* Rheed. Hort. Malabar. 6: t. 34, Rheede being cited first, Rumphius second; but as the specific name is manifestly taken from Rumphius, while the description given by de Candolle applies better to the form generally interpreted as *Rhizophora conjugata* auct. (non Linn.) than to *R. mucronata* Lam. Rheede's figure is considered to represent *Rhizophora mucronata* Lam.

## BRUGUIERA Lamarck

**BRUGUIERA CONJUGATA** (Linn.) Merr. in Philip. Journ. Sci. 9 (1914) Bot. 118.

*Rhizophora conjugata* Linn. Sp. Pl. (1753) 443, non aliorum!

*Rhizophora gymnorhiza* Linn. l. c.

*Bruguiera gymnorhiza* Lam. Ill. 2 (1797) t. 397, Encycl. 4 (1798) 696.

*Bruguiera rumphii* Blume Mus. Bot. 1 (1849) 138.

*Rhizophora* ? *palun* DC. Prodr. 3 (1828) 33.

*Bruguiera gymnorhiza* Lam. var. *palun* Blume Mus. Bot. 1 (1849) 136.

*Mangium celsum* Rumph. Herb. Amb. 3: 102, t. 68.

*Mangium minus* Rumph. Herb. Amb. 3: 106, t. 69 excl. fl. et f. A, B.

There is no specimen of this species in our Amboina collections; and, although both of the figures cited above are crude, there is very little doubt that both are properly referable here. The reduction of *Mangium celsum* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 12, Amoen. Acad. 4 (1759) 123, Syst. ed. 10 (1759) 1043 (*Rhizophora gymnorhiza* Linn.), in which he was followed by various other authors. Since the transfer of the species to *Bruguiera*, the plate has very generally been cited under *B. gymnorhiza* Lam., although Blume placed it under his *B. rumphii*. *Mangium minus* Rumph. is manifestly a mixture, the leaves and fruits apparently being the same as those of *B. conjugata* (*B. gymnorhiza*), but the flowers and figures A and B certainly represent *Bruguiera cylindrica* Blume, below. It is, excluding figures A and B, the whole basis for *Rhizophora palun* DC. Blume, Mus. Bot. 1 (1849) 143, suggests that the description, but not the plate, of *Mangium minus* s. *palun* may be *Ceriops zippeliana* Blume (see *Ceriops tagal* (Perr.) C. B. Rob. p. 386). It is to be noted that the two attached flowers on the plate of *Mangium minus* Rumph. Herb. Amb. 3: 106, t. 69, and figures A and B, were copied by Burman from Rheedee's figure of *Cari Candel*, Hort. Malabar. 6: t. 33, and have nothing to do with the plant actually figured and described by Rumphius; see under *Bruguiera cylindrica* (Linn.) Blume, below.

**BRUGUIERA CYLINDRICA** (Linn.) Blume Enum. Pl. Jav. (1828) 93.

*Rhizophora cylindrica* Linn. Sp. Pl. (1753) 443.

*Rhizophora caryophylloides* Burm. f. Fl. Ind. (1768) 109.

*Bruguiera caryophylloides* Blume Enum. Pl. Jav. (1828) 93.

*Kanilia caryophylloides* Blume Mus. Bot. 1 (1849) 141.

*Mangium minus* Rumph. Herb. Amb. 3: t. 69, pp. quoad fl. et f. A, B.

*Mangium caryophylloides* Rumph. Herb. Amb. 3: 119, t. 78.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 265. along tidal streams, July 26, 1913, locally known as *tonki*.



*Rhizophora cylindrica* Linn. must be interpreted solely by *Cari-Candel* Rheed. Hort. Malabar. 6: 59, t. 33, which most authors agree represents the form described by Blume as *Bruguiera caryophylloides* (Burm. f.) Blume. *Mangium minus* Rumph., as figured, is manifestly a composite species, the attached flowers and figures A and B having been copied by Burman in editing Rumphius's work from *Cari-Candel* Rheed. Hort. Malabar. 6: t. 33. The leafy branch and fruits, excluding the attached flowers and figures A and B, and the description for the most part are probably referable to *Bruguiera gymnorhiza* Lam. (*B. rheedi* Blume). It was reduced by Linnaeus to his *Rhizophora cylindrica*, in Stickman Herb. Amb. (1754) 12, Amoen. Acad. 4 (1759) 123, Syst. ed. 10 (1759) 1043, Sp. Pl. ed. 2 (1762) 635, in which he was followed by Burman, Lamarck, Willdenow, and other authors. *Mangium caryophylloides* Rumph. is the basis of *Rhizophora caryophylloides* Burm. f., Fl. Ind. (1768) 109, from which again *Bruguiera caryophylloides* Blume and *Kanilia caryophylloides* Blume must be interpreted. The figure is not good, but is undoubtedly referable here, while the description applies closely to the form generally named *Bruguiera caryophylloides* Blume=*B. cylindrica* (Linn.) Blume.

**BRUGUIERA SEXANGULA** (Lour.) Poir. in Lam. Encycl. Suppl. 4 (1816) 262.

*Rhizophora sexangula* Lour. Fl. Cochinch. (1790) 297.

*Bruguiera eriopetala* W. & A. in Ann. Nat. Hist. 1 (1838) 368.

*Bruguiera gymnorhiza* Blume Mus. Bot. 1 (1849) 136, non Lam.

*Bruguiera cylindrica* Blume l. c. 137.

*Mangium digitatum* Rumph. Herb. Amb. 3: 107, t. 70.

AMBOINA, Ayer putri, Robinson Pl. Rumph. Amb. 264, July 28, 1913, along tidal streams, locally known as *mangi mangi*.

*Mangium digitatum* Rumph. has been reduced by some authors to *Bruguiera gymnorhiza* Lam. and by others to *B. cylindrica* Blume. It seems, however, to be the species commonly known as *Bruguiera eriopetala* W. & A., which I have here reduced to the older *Bruguiera sexangula* Poir. (*Rhizophora sexangula* Lour.).

The generic description given by Linnaeus, Gen. Pl. (1754) 202, is unmistakably *Rhizophora* as at present understood, although the first two species cited in his Species Plantarum (1753) 443 are representatives of *Bruguiera*, the third a *Kandelia*, and the last two true *Rhizophorae*. The first species, *Rhizophora conjugata* Linn., has been misinterpreted by most authors since its publication, but it has page priority over *Rhizophora gymnorhiza* Linn. Trimen \* states:

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\* Fl. Ceyl. 2 (1894) 154.

There is no specimen in Hermann's Herb., but his drawing is unmistakably this species [*Bruguiera gymnorhiza* Lam.] and it is the whole foundation for Linnaeus's *Rhizophora conjugata*, which name has been since always applied to another plant, *R. Candelaria* DC., to which this bears a strong resemblance in foliage.

If rules of priority be followed, the adoption of the name *Bruguiera conjugata* is unavoidable for this widely distributed Indo-Malayan species.

## COMBRETACEAE

### TERMINALIA \* Linnaeus

**TERMINALIA CATAPPA** Linn. Mant. 1 (1767) 128, 2 (1771) 519.

*Terminalia moluccana* Lam. Encycl. 1 (1783) 349 (type!).

*Juglans catappa* Lour. Fl. Cochinch. (1790) 573.

*Catappa domestica* Rumph. Herb. Amb. 1: 174, t. 68.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb. 414*, September 4, 1913, along the seashore, locally known as *katappan*.

The Rumphian figure and description are, at least in part, the basis of *Terminalia catappa* Linn., as they were cited in the original publication of the species. They are also the whole basis of *Terminalia moluccana* Lam., cited above, and in part the basis of *Juglans catappa* Lour. The three forms described by Rumphius are probably all referable to *Terminalia catappa* Linn., which presents considerable variation in its fruit characters. Hasskarl, *Neue Schlüssel* (1866) 22, has referred all of them to varietal forms, *Catappa domestica* to *Terminalia catappa* var. *macrocarpa* Hassk., *C. silvestris litorea* to *T. catappa* var. *rhodocarpa* Hassk., and *C. silvestris altera* to *T. catappa* var. *chlorocarpa* Hassk. The form distributed under *Robinson Pl. Rumph. Amb. 414* is exactly *Catappa silvestris litorea* Rumph.

### QUISQUALIS Linnaeus

**QUISQUALIS INDICA** Linn. Sp. Pl. ed. 2 (1762) 556 (type).

*Quisqualis pubescens* Burm. f. Fl. Ind. (1768) 104 (type!).

*Quis qualis* Rumph. Herb. Amb. 5: 71, t. 38.

This species is not represented in our Amboina collections. So far as the original Linnean description shows, the genus and the species were based wholly on Rumphius, although he may have had botanical material from India or Malaya. The form figured by Rumphius is certainly the common and widely distributed Malayan and Philippine form that is currently called *Quisqualis indica* Linn. The Linnean reduction has been fol-

\* Retained name, Brussels Congress; *Adamaram* Adans. (1763) is older.

lowed by most authors, but Burman f., Fl. Ind. (1768) 104, based his *Quisqualis pubescens* wholly on the Rumphian *Quisqualis*, and his var. *glabra* l. c. t. 28, f. 2, on Javan specimens. *Quisqualis pubescens* Burm. f. is thus an exact synonym of the older *Q. indica* Linn. Poiret, in Lam. Encycl. 6 (1804) 43, referred the Rumphian figure to *Quisqualis glabra* Burm. f., which likewise is a synonym of *Q. indica* Linn.

## MYRTACEAE

## PSIDIUM Linnaeus

PSIDIUM GUAJAVA Linn. Sp. Pl. (1753) 470.

*Psidium pomiferum* Linn. Sp. Pl. ed. 2 (1762) 672.

*Psidium pyriferum* Linn. l. c. 672.

*Psidium cujavus* Linn. in Stickman Herb. Amb. (1754) 7, Amoen. Acad. 4 (1759) 119 (type!).

*Cujavus domestica* Rumph. Herb. Amb. 1: 140, t. 47.

*Cujavus agrestis* Rumph. Herb. Amb. 1: 142, t. 48.

*Cujavus silvestris* Rumph. Herb. Amb. 1: 143.

AMBOINA, Robinson Pl. Rumph. Amb. 202, July 31, 1913, on hills in the vicinity of the town of Amboina.

The three forms described by Rumphius are all apparently referable to *Psidium guajava* Linn., the two forms figured representing the one with the pyriform fruit (*Cujavus domestica* Rumph.), the other with the ovoid or ellipsoid fruit (*Cujavus agrestis* Rumph., the type of *Psidium cujavus* Linn.). These forms have been recognized by some authors as distinct species, by others as varieties of *Psidium guajava* Linn. Both figures were originally reduced by Linnaeus, in Stickman Herb. Amb. (1754) 7; t. 47 to *Psidium guajava* Linn. and t. 48 to *Psidium cujavus* Linn., the latter figure being the whole basis of the latter species. Following current modern usage both *Psidium pomiferum* Linn. and *Psidium pyriferum* Linn. are here considered as synonyms of *Psidium guajava* Linn.

PSIDIUM CUJAVILLUS Burm. f. Fl. Ind. (1768) 114.

*Psidium pumilum* Vahl Symb. 2 (1791) 56.

*Psidium angustifolium* Lam. Encycl. 3 (1789) 17.

*Cujavillus* Rumph. Herb. Amb. 1: 145, t. 49.

AMBOINA, Way tommu, Robinson Pl. Rumph. Amb. 203, September 25, 1913, in waste places at low altitudes, locally known as *guayawas china*.

*Psidium cujavillus* Burm. f. was based primarily on a Javan specimen, and *Psidium pumilum* Vahl on one from Ceylon, although both authors cite *Cujavillus* Rumph. as a synonym, and Burman f. took his specific name from Rumphius. By some

authors the species has been erroneously reduced to *Psidium guajava* Linn. Lamarck also cites *Cujavillus* Rumph. in the original description of *Psidium angustifolium* Lam. Most authors who have had occasion to cite the Rumphian figure have placed *Cujavillus* under *Psidium pumilum* Vahl, but *Psidium cujavillus* Burm. f. is manifestly the same species and is a much older name. Pritzl, Ic. Bot. Index, has erroneously listed the figure of *Cujavillus* as *Psidium decaspermum* Linn. f.=*Decaspermum fruticosum* Forst.; while Henschel, with equal error, placed it under *Nelitris jambosella* Gaertn.=*Timonius jambosella* Thw. (See also under *Decaspermum fruticosum* Forst.)

#### DECASPERMUM Forster

**DECASPERMUM FRUTICOSUM** Forst. Char. Gen. (1776) 74, t. 37.

*Psidium decaspermum* Linn. f. Suppl. (1781) 252.

*Eugenia polygama* Roxb. Hort. Beng. (1814) 92, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 491.

*Nelitris paniculata* Lindl. Collect. Bot. (1821) 16.

*Nelitris polygama* Spreng. Syst. 2 (1825) 488.

*Nelitris rubra* Blume Mus. Bot. 1 (1849) 73, excl. syn. Lour., Poir., R. & S.

*Nelitris alba* Blume l. c. 74.

*Decaspermum rubrum* Baill. Hist. Pl. 6 (1877) 341.

*Decaspermum paniculatum* Kurz in Journ. As. Soc. Beng. 46<sup>1</sup> (1877) 61.

*Caryophyllaster albus* Rumph. Herb. Amb. 3: 211.

*Caryophyllaster ruber* Rumph. Herb. Amb. 3: 211, t. 136.

AMBOINA, Hitoë messen, Gelala, and Batoe gadjah, *Robinson Pl. Rumph. Amb.* 205, 206, 207, August to September, 1913, in forests and along streams, altitude 80 to 250 meters.

*Caryophyllaster ruber* Lour. was erroneously reduced by Loureiro, Fl. Cochinch. (1790) 144, to *Antherura rubra* Lour., a rubiaceous plant, to which the synonyms *Psychotria rubra* Poir. and *P. antherura* R. & S. pertain, although placed by Blume with *Caryophyllaster ruber* under *Nelitris rubra* Blume. Poirët, Roemer and Schultes, and Blume cite the Rumphian plant as a synonym of *Psychotria rubra* Poir., *P. antherura* R. & S., and *Nelitris rubra* Blume, respectively. The form described by Rumphius as *Caryophyllaster albus* I consider to be referable to the same species as *Caryophyllaster ruber*, and accordingly here reduce it with *Nelitris alba* Blume to *Decaspermum fruticosum* Forst. *Decaspermum fruticosum* Forst. and *Psidium decaspermum* Linn. f. have been confused with *Timonius jambosella* Thw., on account of Gaertner's erroneous reduction of *Decaspermum fruticosum* Forst. to *Nelitris jambosella* Gaertn.; the species figured by Gaertner is a true *Timonius*, the Ceylon

*Timonius jambosella* Thw. Gaertner's description is in part some species of *Eugenia*. The plant here considered appears in herbaria generally under the name *Decaspermum paniculatum* Kurz, but from material before me I can see no reason for considering it specifically distinct from the type of the genus, *Decaspermum fruticosum* Forst. The species is somewhat variable. It is a common and widely distributed plant in Malaya and Polynesia.

### EUGENIA Linnaeus

**EUGENIA CARYOPHYLLATA** Thunb. Diss. (1788) 1.

*Caryophyllus aromaticus* Linn. Sp. Pl. (1753) 515, non *Eugenia aromatica* Berg.

*Caryophyllus silvestris* Teysm. ex Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 167 [Neue Schlüssel (1866) 25] (type!).

*Caryophyllum* Rumph. Herb. Amb. 2: 1, t. 1.

*Caryophyllum regium* Rumph. Herb. Amb. 2: 10, t. 2.

*Caryophyllum silvestre* Rumph. Herb. Amb. 2: 12, t. 3.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb.* 201, October, 1913, from cultivated trees, locally known as *chenki*.

I can see no valid reason for considering that more than one species is represented by the three forms figured and described by Rumphius, although Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 25, makes *Caryophyllum silvestre* Rumph. the type of *Caryophyllus silvestris* Teysm. The first figure represents the normal cultivated form, the second a form with somewhat fasciated inflorescences, while the third apparently represents the wild form of the same species. All three figures were originally reduced by Linnaeus to *Caryophyllus aromaticus* Linn., in Stickman Herb. Amb. (1754) 8, Amoen. Acad. 4 (1759) 120, Sp. Pl. ed. 2 (1762) 735, and this reduction has been very generally accepted as the correct disposition of all three.

**EUGENIA AQUEA** Burm. f. Fl. Ind. (1768) 114 (type!).

*Jambosa aquea* DC. Prodr. 3 (1828) 288 (type!).

*Cerocarpus aqueus* Hassk. in Flora 25 (1842) Beibl. 36 (type!).

*Eugenia mindanaensis* C. B. Rob. in Philip. Journ. Sci. 4 (1909) Bot. 363.

*Jambosa aquea* Rumph. Herb. Amb. 1: 126, t. 38, f. 2.

*Jambosa aquea altera* Rumph. Herb. Amb. 1: 126.

AMBOINA, Hoenot, *Robinson Pl. Rumph. Amb.* 192, from cultivated trees, locally known as *jambu ayer*.

*Jambosa aquea* Rumph. is the whole basis of *Eugenia aquea* Burm. f. and is generally cited in botanical literature under *Jambosa aquea* DC. It was erroneously referred by Lamarck to *Eugenia javanica* Lam. and by Pritzel to *Eugenia racemosa*

Linn. *Eugenia mindanaensis* C. B. Rob., described from Mindanao specimens, is manifestly identical with *Eugenia aquea* Burm. f. This reduction had been indicated by Doctor Robinson in the herbarium of the Bureau of Science before his departure for Amboina in June, 1913.

**EUGENIA CUMINI** (Linn.) comb. nov.

*Myrtus cumini* Linn. Sp. Pl. (1753) 471.

*Eugenia jambolana* Lam. Encycl. 3 (1789) 198.

*Calyptranthes jambolana* Willd. in Usteri Ann. 17 (1796) 23.

*Eugenia obtusifolia* Roxb. Hort. Beng. (1814) 37, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 485.

*Syzygium jambolanum* DC. Prodr. 3 (1828) 259.

*Syzygium cumini* Skeels in U. S. Dept. Agr. Bur. Pl. Ind. Bull. 248 (1912) 25.

*Jambosa ceramica* Rumph. Herb. Amb. 1: 130, t. 41.

*Jambolana* Rumph. Herb. Amb. 1: 131, t. 42.

This species is not represented in our Amboina collections, but *Rel. Robins.* 2448 from Macassar, Celebes, July 11, 1913, is typical *Jambolana* Rumph. Linnaeus, in Stickman Herb. Amb. (1745) 7, Amoen. Acad. 4 (1759) 119, reduced *Jambolana*, with doubt, to *Jambolifera pedunculata* Linn., in which he was followed by Burman f., Lamarck, Loureiro, Murray, and Pritzel. It has been cited by various authors under *Eugenia jambolana* Lam., *Calyptranthes jambolana* Willd., *Eugenia obtusifolia* Roxb., and *Syzygium jambolanum* DC., and is the type of var.  $\beta$  of the last in DC. Prodr. 3 (1828) 260.

I am now of the opinion that *Myrtus cumini* Linn. supplies the oldest valid specific name for this species. *Jambolifera pedunculata* Linn., Sp. Pl. (1753) 349, was based primarily on *Fl. Zeyl.* 139, and the specimen in Hermann's herbarium is *Acronychia laurifolia* Blume.\* The description in *Flora Zeylanica* applies to *Acronychia laurifolia*, not to *Eugenia cumini*, but the name and the synonyms *Jambolones* and *Jambolons* apply to *Eugenia cumini*. It is clear, however, that Linnaeus's later conception of *Jambolifera pedunculata* was as *Eugenia cumini* rather than *Acronychia laurifolia*, as shown by his reduction of *Jambolana* Rumph. and the reference to Plukenet added in the Mantissa 2 (1771) 371. I believe, however, that the original description and specimen should stand as representing *Jambolifera pedunculata* Linn. and that it goes with *Acronychia laurifolia* Blume as a synonym. *Myrtus cumini* Linn. was based wholly on *Fl. Zeyl.* 185, and the description and the specimen

\* See Trimen in Journ. Linn. Soc. 24 (1887) 140

in Hermann's herbarium is *Eugenia jambolana* Lam. The specific names, *cumini* and *jambolifera*, were interchanged between *Eugenia* and *Acronychia*.

I can see no reason for considering *Jambosa ceramica* Rumph. to be other than *Eugenia cumini* (Linn.) Merr. Linnaeus placed it under *Myrtus cumini* Linn., and Willdenow placed it under *Calyptranthes caryophyllifolia* Willd., both synonyms of *Eugenia cumini* (Linn.) Merr. Lamarck, Encycl. 3 (1789) 199, placed it under *Eugenia cymosa* Lam., a species based primarily on specimens from the Isle of France. At any rate *Jambosa ceramica* Rumph. is not *Eugenia cymosa* Lam. as Lamarck's species is currently interpreted.

**EUGENIA JAVANICA** Lam. Encycl. 3 (1789) 200.

*Jambosa silvestris parvifolia* Rumph. Herb. Amb. 1: 129, 2: t. 40.

In all copies of the Herbarium Amboinense, t. 40 of volume one and two are transposed; the plate in volume one corresponds to *Radix deipariae spuria* Rumph. Herb. Amb. 2: 127 and is *Gmelina villosa* Roxb., while the plate in volume two corresponds to *Jambosa silvestris parvifolia* Rumph. Herb. Amb. 1: 129 and is the species here considered (see under *Gmelina villosa* Roxb., p. 454). Perhaps the chief reason why the description and figure as given by Rumphius have never been properly placed was due to this transposition of the plates, which is mentioned in the Auctuarium (Herb. Amb. 7: 3). The illustration seems to me to be a fairly typical representation of *Eugenia javanica* Lam.; and I have made this reduction with considerable confidence, although I have seen no botanical material from Amboina that I would refer to this species.

**EUGENIA SUBGLAUCA** Koord. & Valeton in Bull. Inst. Bot. Buitenz. 2 (1899) 8, var.

*Jambosa litorea* Rumph. Herb. Amb. 3: 81, t. 53.

AMBOINA, Amahoesoe and Hoenet, *Robinson Pl. Rumph. Amb. 193, 196*, September and October, 1913, on cliffs near the seashore, locally known as *jambu ayer* and *jambu puti*.

No previous reduction of *Jambosa litorea* Rumph. has been suggested, other than Henschel's statement that it pertained to the *Myrtaceae*. The description and figure manifestly pertain to *Eugenia*, a species in the group with *Eugenia javanica* Lam., *E. colubcob* C. B. Rob., and *E. subglauc*a Koord. & Valeton. The Amboina specimens, which certainly represent *Jambosa litorea* Rumph., differ from the Javanese *Eugenia subglauc*a Koord. & Val. in their leaves, which are more rounded at the

base and relatively somewhat broader and thicker. Even if eventually distinguished as a valid species, it must certainly be placed near the Javanese one.

**EUGENIA RUMPHII** sp. nov. § *Syzygium*.

*Arbor rubra* III Rumph. Herb. Amb. 3: 76.

AMBOINA, Hitoë messen, *Robinson Pl. Rumph. Amb.* 199 (type), 200, November 6, 1913, in forests, altitude about 175 meters, locally known as *kayu mera*.

*Arbor glabra* circiter 16 m alta, ramis ramulisque teretibus vel ramulis obscure rotundato-angulatis; foliis obovatis ad obovato-ellipticis, usque ad 10 cm longis, apice latissime rotundatis interdum retusis vel obscurissime apiculatis, basi angustatis, cuneatis, margine revolutis, supra olivaceis, valde nitidis, subtus pallidis, haud puncticulatis, nervis utrinque numerosis, tenuibus; inflorescentiis corymbosis, terminalibus, circiter 5 cm longis; floribus plerumque in triadibus dispositis, omnibus breviter pedicellatis, calycis circiter 7 mm longis, anguste infundibuliformibus, subtruncatis, calyptra 5 mm diametro.

An entirely glabrous tree about 16 m in height, the branches and branchlets brownish, smooth, terete or sometimes with obscure rounded angles. Leaves coriaceous, obovate to obovate-elliptic, 5 to 10 cm long, 3 to 5.5 cm wide, apex broadly rounded, often retuse, sometimes obscurely apiculate, base gradually narrowed, cuneate, margins recurved, the upper surface dark-olivaceous, strongly shining, the lower pale, dull, not puncticulate; lateral nerves numerous, slender, spreading, densely arranged, the primary ones but little more prominent than the secondary, reticulations obsolete or nearly so; petioles about 1 cm long. Inflorescence terminal, corymbose, about 5 cm long and wide, branches from the base, the branches ascending, the flowers white, mostly in triads on the ultimate branchlets, all pedicelled, the bracteoles broadly ovate, rounded, thick, about 1 mm long, the pedicels stout, 2 to 3 mm long. Calyx narrowly funnel-shaped, about 7 mm long, truncate or with obscure lobes. Calyptra 5 mm in diameter, broadly ovoid, rounded. Stamens indefinite, 5 to 10 mm long.

This is a sufficiently characteristic species, which I cannot refer to any previously described form. It is readily recognizable by its densely nerved, coriaceous, obovate to obovate-elliptic, broadly rounded, shining leaves, these often retuse at the apex. No previous attempt has been made to determine the status of *Arbor rubra* III of Rumphius, other than Hasskarl's reduction of it to the *Myrtaceae*; it is undoubtedly *Eugenia rumphii*.



**EUGENIA STIPULARIS** (Blume) Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 441.

*Gelpkea stipularis* Blume Mus. Bot. 1 (1849) 88.

*Jambosa silvestris ayer utan* Rumph. Herb. Amb. 1: 129.

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb.* 191, August 25, 1913, in forests, altitude about 200 meters, locally known as *jambu utan* and *kayu jambu jambu*.

Hamilton, Mem. Wern. Soc. 5<sup>2</sup> (1826) 338, placed this under *Eugenia laeta* Ham., the description of which, however, was based on an Indian specimen. Blume, Mus. Bot. 1 (1849) 104, followed Hamilton in this reduction of *Jambosa silvestris ayer utan* and cites *Jambosa linearis* Korth. as a synonym. The description given by Rumphius certainly does not apply to *Eugenia laeta* Ham. nor to *Jambosa linearis* Korth., but does apply fairly closely to *Eugenia stipularis* Miq., the type of which was from Amboina.

**EUGENIA CELEBICA** (Blume) comb. nov.

*Jambosa celebica* Blume Mus. Bot. 1 (1849) 107.

*Jambosa silvestris s. biawas* Rumph. Herb. Amb. 1: 128?

The reduction of this Celebes form, very imperfectly described by Rumphius, merely follows Blume's suggestion. It may or may not be the correct disposition of it, although the form that Rumphius described is certainly a *Eugenia* of the section *Jambosa*.

**EUGENIA JAMBOS** Linn. Sp. Pl. (1753) 470.

*Jambosa vulgaris* DC. Prodr. 3 (1828) 286.

*Jambosa rosacea* Rumph. Herb. Amb. 1: 123.

The description certainly applies to the rose apple, *Eugenia jambos* Linn. (*Jambosa vulgaris* DC.), where *Jambosa rosacea* Rumph. has been referred by Henschel, Blume, DeVriese, Miquel, and Hasskarl.

**EUGENIA** sp. aff. *jambos* Linn.?

*Jambosa (sylvestris) alba* Blume Mus. Bot. 1 (1849) 94, non Don, nec *Eugenia alba* Roxb.

*Jambosa silvestris alba* Rumph. Herb. Amb. 1: 127, t. 39.

Rumphius's figure represents a characteristic species, and when once collected in Amobina botanical material should be readily connected with it. *Jambosa silvestris alba* Rumph. was originally reduced by Linnaeus to *Eugenia jambos* Linn., in Stickman Herb. Amb. (1754) 7, Amoen. Acad. 4 (1759) 119, Syst. ed. 10 (1759) 1055, Sp. Pl. ed. 2 (1762) 672; and in this manifestly erroneous reduction he was followed by Burman f., Lamarck, Willdenow, Loureiro, Roxburgh, and Persoon. Wight

and Arnott, Prodr. (1834) 332, with doubt, reduced it to *Jambosa aquea* DC.; Hasskarl placed it under *Eugenia macrophylla* DC.; and Berg. erroneously placed it under *Jambosa vulgaris* DC. Blume, Mus. Bot. 1 (1849) 93, has maintained it as a valid species, *Jambosa alba*, but the specific name used by him is invalid in both *Eugenia* and *Jambosa*.

**EUGENIA MALACCENSIS** Linn. Sp. Pl. (1753) 470.

*Jambosa malaccensis* DC. Prodr. 3 (1828) 286.

*Myrtus malaccensis* Spreng. Syst. 2 (1825) 484.

*Jambosa purpurascens* DC. Prodr. 3 (1828) 286.

*Eugenia purpurea* Roxb. Hort. Beng. (1814) 37, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 483.

*Jambosa domestica* Blume Mus. Bot. 1 (1849) 91.

*Jambosa domestica* Rumph. Herb. Amb. 1: 121, t. 37.

*Jambosa nigra* Rumph. Herb. Amb. 1: 125, t. 38, f. 1.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 194, October 29, 1913, from cultivated trees, locally known as *jambu ruttun*.

*Jambosa domestica* Rumph. was first reduced to *Eugenia malaccensis* Linn. by Linnaeus, Syst. ed. 10 (1759) 1055, and *Jambosa nigra* Rumph. was reduced to the same species by Linnaeus, in Stickman Herb. Amb. (1754) 7; both reductions apparently are correct. Neither figure can be considered as good, however. The Rumphian names have been cited by various authors under one or another of the synonyms given above. The several forms named and described by Rumphius were made by Blume, Mus. Bot. 1 (1849) 91, the types of several varieties of *Jambosa domestica* Blume=*Eugenia malaccensis* Linn., as follows: *Jambosa domestica* II minor Rumph.=var. *minor* Blume; *Jambosa domestica* rosacea Rumph.=var. *rosacea* Blume; *Jambosa domestica* calapparia Rumph.=var. *calapparia* Blume; and *Jambosa nigra* Rumph.=var. *nigra* Blume. They are apparently all variants of *Eugenia malaccensis* Linn., which like most cultivated fruit trees presents a considerable range of variation in the color, size, and other characters of its fruits.

**EUGENIA MELASTOMIFOLIA** (Blume) comb. nov.

*Jambosa melastomifolia* Blume Mus. Bot. 1 (1849) 102.

*Arbor rubra* II Rumph. Herb. Amb. 3: 76.

AMBOINA, Lateri, Robinson Pl. Rumph. Amb. 198, September 5, 1913, in forests, altitude about 200 meters, locally known as *daun jambu jambu*.

The specimen, which presents very young flowers, appears to agree with both Rumphius's and with Blume's descriptions. *Jambosa melastomifolia* Blume having been based on Amboina specimens collected by Zippel. I do not agree with Miquel,

Fl. Ind. Bat. 1<sup>1</sup> (1855) 522, in reducing *Jambosa melastomifolia* Blume to *Jambosa bifaria* Wight.

**EUGENIA** sp.

*Arbor rubra* I Rumph. Herb. Amb. 3: 74, t. 47.

This is a sufficiently characteristic species of *Eugenia* of the section *Syzygium*; it is, however, not represented in our Amboina collections. No botanist has suggested its determination beyond the genus. Lamarck reduced it to *Eugenia* sp., and Teysmann expressed the opinion that it is, with doubt, a *Jambosa*. The figure looks suspiciously like *Eucalyptus deglupta* Blume (see p. 401), but although the bark is described as peeling off in thin flakes, a character found in many species of *Eugenia*, the description of the fruits and of the odor and taste of the leaves definitely removes it from *Eucalyptus*.

**EUGENIA** sp.

*Arbor rubra* I *angustifolia* Rumph. Herb. Amb. 3: 75, t. 48.

This is a characteristic species of *Eugenia* of the section *Jambosa*, not represented in our Amboina collections. No suggestions have been made by other botanists as to its possible or probable identity. In the absence of material for comparison with the various named species from the Moluccas, no suggestion can be made as to its proper disposition.

**EUGENIA** sp.

*Folium intinctus* Rumph. Herb. Amb. 3: 202.

Loureiro, Fl. Coch. (1790) 231, mentions this under *Jambolifera odorata* Lour. (= *Acronychia*?), with which it has nothing in common. Henschel, Vita Rumph. (1833) 160, places it, with doubt, under *Cyminosma odorata* DC., which is merely a new name for *Jambolifera odorata* Lour. Rumphius's description conforms in all respects to *Eugenia* and probably refers to some species of this genus.

**EUGENIA** sp.

*Arbor rubra* II *saxatilis* Rumph. Herb. Amb. 3: 76.

Further determination of this form is impossible from the data and material at present available.

**EUGENIA** sp.

*Arbor rubra* IV Rumph. Herb. Amb. 3: 77.

The form described is probably a *Eugenia*, but its exact status is indeterminable from data at present available.

**EUGENIA** sp.?

*Perticaria ferrea parvifolia* Rumph. Herb. Amb. 3: 80, t. 52.

The figure resembles *Eugenia* in many characters, yet if the flowers be correctly delineated, the plant can be no *Eugenia*, and hardly a myrtaceous one. Its status is indeterminable from material and data at present available.

**EUGENIA** sp.?

*Perticaria ferrea latifolia* Rumph. Herb. Amb. 3: 80.

This may or may not belong in the same genus with the preceding one. Its status is entirely uncertain, and it may not even belong in the *Myrtaceae*.

**EUGENIA** sp.

*Jambosa silvestris alba* Rumph. Herb. Amb. 3: 81.

This is a *Eugenia* of the section *Jambosa*, but its further identity is entirely doubtful.

**METROSIDEROS** \* Banks

**METROSIDEROS VERA** Roxb. Hort. Beng. (1814) 37 (type!); Lindl. Collect. Bot. (1821) t. 18.

*Nania vera* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1855) 400.

*Syncarpia vertholentii* Teysm. & Binn. in Nat. Tijdschr. Ned. Ind. 2 (1851) 307, Nederl. Kruidk. Arch. 3 (1855) 411.

*Metrosideros vera parvifolia* Rumph. Herb. Amb. 3: 16, t. 7.

*Metrosideros vera latifolia* Rumph. Herb. Amb. 3: 16, 19.

This species is not represented in our Amboina collections. *Metrosideros vera*, usually accredited to Lindley as its author, should be accredited to Roxburgh instead. The original publication of the name was based wholly on Rumphius by citation of the illustration, in Hortus Bengalensis (1814) 37.† It was later described by Roxburgh, Fl. Ind. ed. 2, 2 (1832) 477, from specimens cultivated at Calcutta, which had been introduced into the botanic garden from Amboina. *Syncarpia vertholentii* Teysm. & Binn. was described from Amboina specimens, and its authors reduced to it *Metrosideros vera parvifolia* Rumph. The first reduction was that made by Loureiro, Fl. Cochinch. (1790) 309, to *Opa metrosideros* Lour. *Opa metrosideros* Lour. is not at all *Metrosideros vera* Roxb., but is a synonym of *Raphiolepis indica* (Linn.) Lindl., of the *Rosaceae*. The form described by Rumphius as *Metrosideros vera latifolia* does not appear to

\* Retained name, Brussels Congress; *Nani* Adans. (1763) is older.

† See C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 414.

be specifically distinct from the one described as *Metrosideros vera parvifolia*, although a more extended exploration of the Moluccas may show that two distinct species are involved.

## EUCALYPTUS L'Héritier

**EUCALYPTUS DEGLUPTA** Blume Mus. Bot. 1 (1849) 83.

*Populus deglubata* Reinw. ex Blume l. c. in syn.

*Eucalyptus versicolor* Blume Mus. Bot. 1 (1849) 84 (type!).

*Eucalyptus multiflora* Rich ex A. Gray Bot. Wilkes U. S. Explor. Exped. (1854) 554.

*Eucalyptus naudiniana* F. Muell. in Austral. Journ. Pharm. (1886) 239, Bot. Centralbl. 28 (1886) 179.

*Eugenia binacag* Elm. Leaf. Philip. Bot. 7 (1914) 2351.

*Eucalyptus binacag* Elm. l. c. 8 (1915) 2776.

*Arbor versicolor* Rumph. Herb. Amb. 3: 122, t. 80.

Rumphius's material, on which his figure and description of *Arbor versicolor* were based, was from Ceram, not from Amboina. The description and the figure, as far as they go, are unmistakably a *Eucalyptus*. I feel quite confident that *Eugenia deglupta* Blume, from Celebes; *E. versicolor* Blume, from Ceram; *E. multiflora* Rich and *E. binacag* Elm., of Mindanao; and *E. naudiniana* F. Muell., of the Bismarck Archipelago, are all referable to a single species, which is now definitely known from a half-dozen localities in Mindanao, from New Guinea, and from the Bismarck Archipelago, and with the inclusion of Blume's species, from Celebes and Ceram. There is not a character given by Blume for either *Eucalyptus versicolor* or *E. deglupta* by which the two can be definitely distinguished from each other or from *Eucalyptus naudiniana* F.-Muell. *Eucalyptus moluccana* Roxb., as described, must represent a different species, at least entirely different from *Eucalyptus naudiniana* F.-Muell. and the Philippine synonyms cited here. *Eucalyptus versicolor* Blume is based wholly on Rumphius's description of *Arbor versicolor*, and it is to be noted that Blume, by error, cites t. 53 instead of t. 80 as representing the species. The latter figure is *Eugenia subglauc* Koord. & Valetton, as I have here determined it (see p. 395).

*Eucalyptus sarassa* Blume, Mus. Bot. 1 (1849) 84, unaccompanied by any word of description, was based on *Kaju sarassa* Rumph., incidentally mentioned by Rumphius, Herb. Amb. 3: 122, following the description of *Arbor versicolor*. It is indeterminable from any data now available, and there is little or no evidence that it belongs to *Eucalyptus*.

## LEPTOSPERMUM Forster

**LEPTOSPERMUM FLAVESCENS** Smith in Trans. Linn. Soc. 3 (1797) 262.

*Leptospermum amboinense* Blume Bijdr. (1826) 1100.

*Leptospermum porophyllum* Cav. Ic. 4 (1797) 17, t. 330, f. 2.

*Melaleuca thea* Wendl. Sert. Hannov. (1795-98) 24, t. 13?

*Leptospermum thea* Willd. Sp. Pl. 2 (1799) 949?

*Macklottia amboinensis* Korth. in Nederl. Kruidk. Arch. 1 (1847) 196.

*Myrtus amboinensis* Rumph. Herb. Amb. 2: 77, t. 18.

AMBOINA, Hoetoemoeri road, *Robinson Pl. Rumph. Amb. 204*, September 30, 1913, on lightly forested hillsides, altitude about 250 meters.

*Myrtus amboinensis* Rumph. has been very generally reduced to *Leptospermum amboinense* Blume, but this species does not appear to be specifically distinct from the much older *Leptospermum flavescens* Smith. The younger Linnaeus reduced it to *Melaleuca virgata* Linn. f., Suppl. (1781) 343; which, however, was based on *Leptospermum virgatum* Forst. = *Baeckea virgata* Andr., in which he was followed by Willdenow and by Lamarck. Burman f., Fl. Ind. (1768) 115, had already referred it to *Myrtus communis* Linn., an entirely erroneous disposition of it. *Leptospermum thea* (Wendl.) Willd. may prove to be the oldest valid name for the species.

## MELALEUCA \* Linnaeus

**MELALEUCA LEUCADENDRA** Linn. Mant. 1 (1767) 105.

*Myrtus leucadendra* Linn. in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 120, Syst. ed. 10 (1759) 1056, Sp. Pl. ed. 2 (1762) 676 (type!).

*Myrtus saligna* Burm. f. Fl. Ind. (1768) 116, saltem quoad syn. Rumph.

*Melaleuca cajuputi* Roxb. Hort. Beng. (1814) 59 (type!).

*Melaleuca saligna* Blume Mus. Bot. 1 (1849) 66, non Schauer.

*Melaleuca viridiflora* Blume Bijdr. (1026) 1099, var. *angustifolia* Blume l. c.

*Melaleuca trinervis* Ham. ex Henschel Vita Rumph. (1833) 147 (type!).

*Melaleuca minor* Sm. in Rees Cyclop. 23 (1813) no. 2.

*Arbor alba major* Rumph. Herb. Amb. 2: 72, t. 16.

*Arbor alba minor* Rumph. Herb. Amb. 2: 76, t. 17.

AMBOINA, Soja road, *Robinson Pl. Rumph. Amb. 208*, August 1, 1913, on open hillsides, altitude about 150 meters, locally known as *kayu puti*.

*Myrtus leucadendra* Linn. as originally published included both t. 16 and t. 17 of Rumphius. *Myrtus leucadendra* Linn., *Melaleuca leucadendra* Linn., *Melaleuca cajuputi* Roxb., *M. trinervis* Ham., and possibly *M. minor* Sm. are all typified by the Rumphian descriptions and figures. Some authors have assumed that t. 17, f. 2, represents a distinct species, which has

\* Retained name, Vienna Code; *Cajuputi* Adans. (1763) is older.

been indicated as *Melaleuca minor* Sm. and *M. trinervis* Ham., but which seems to be merely a form of *Melaleuca leucadendra* Linn. Cajukelam Rumph. Herb. Amb. 2: 74 may or may not be identical with *Melaleuca leucadendra* Linn. Nearly all authors have cited *Arbor alba* Rumph. under *Melaleuca leucadendron* Linn., but Linnaeus's original spelling is here retained, as he apparently never adopted the form "*leucadendron*." *Melaleuca leucadendra* Linn. is an exceedingly variable species as already noticed by Benth.

## MELASTOMATACEAE

## OTANTHERA Blume

OTANTHERA CYANOIDES (Sm.) Triana in Trans. Linn. Soc. 28 (1871) 55.

*Melastoma cyanoides* Sm. in Rees Cyclop. 23 (1813) no. 56, 57.

*Melastoma moluccanum* Blume Bijdr. (1826) 1078.

*Fragarius ruber* Rumph. Herb. Amb. 4: 135, t. 71.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 512*, July 31, 1913, on wooded hillsides, altitude about 10 meters.

*Melastoma cyanoides* Sm. was based on a specimen collected in Amboina by Mr. Christopher Smith in October, 1796, *Fragarius ruber* Rumph. and *Katou-Kadali* Rheede being cited as synonyms; Rheede's synonym must be excluded as it is not the same as the Amboina plant. Linnaeus erroneously reduced *Fragarius ruber* to *Melastoma asperum* Linn., in Stickman Herb. Amb. (1754) 17, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 1022, Sp. Pl. ed. 2 (1762) 560, in which he was followed by numerous authors. Murray, Syst. (1771) 336, erroneously reduced it to *Melastoma malabathricum* Linn. Blume reduced it to *Melastoma moluccanum* Blume in the original description of that species and later cited it under *Otanthera moluccana* Blume, both of which are manifestly synonyms of *Otanthera cyanoides* (Sm.) Triana. I am indebted to Sir David Prain, director of the Royal Gardens, Kew, England, for a transcript of Smith's original description and for a comparison of Robinson's specimen with the type of Smith's species, which is preserved in the herbarium of the Linnean Society, London.

## MELASTOMA Linnaeus

MELASTOMA POLYANTHUM Blume in Flora 14 (1831) 480.

*Fragarius niger* Rumph. Herb. Amb. 4: 137, t. 72.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb. 508*, July 31, 1913, on hillsides at low altitudes, locally known as *biroro* and *daun biroro*.

The specimen is apparently referable to *Melastoma polyan-*

*thum* Blume as currently interpreted, although the limits of Blume's species and the differential characters by which it can be distinguished from other forms are not at all clear. Linnaeus originally reduced *Fragarius niger* Rumph. to *Melastoma octandrum* Linn., in Stickman Herb. Amb. (1754) 17, Amoen. Acad. 4 (1759) 127, an entirely erroneous disposition of it. Later, Mant. 2 (1771) 381, he transferred it to *Melastoma malabathricum* Linn., to which *Melastoma polyanthum* Blume is certainly closely allied. This reduction has been accepted by numerous authors, including Cogniaux in the latest monograph of the family, DC. Monog. Phan. 7 (1891) 349. Loureiro placed it with doubt under *Melastoma septemnerve* Lour., and Blume himself transferred it to *Melastoma polyanthum* Bl., the latter certainly the most satisfactory position for it.

Another specimen from Amboina, *Rel. Robins.* 2027, from Kati-kati, altitude 80 meters, may represent a form of *Melastoma polyanthum* Blume, and at the same time may represent *Fragarius niger* Rumph., at least in part. It differs from the specimen cited above under *Melastoma polyanthum* Blume in its somewhat longer calyx-lobes and in other minor characters.

#### MELASTOMA sp.

*Fragarius ruber grandifolius* Rumph. Herb. Amb. 4: 136.

AMBOINA, Mahiya, *Robinson Pl. Rumph. Amb.* 511, October 3, 1913, in light woods at an altitude of about 350 meters.

The specimen almost certainly represents the form described by Rumphius as *Fragarius ruber grandifolius*, and at the same time probably represents an undescribed species of *Melastoma*. Unfortunately incomplete material is represented, the petals and stamens having fallen. The branches, branchlets, and leaves are supplied with scattered, minute, appressed scales, and the calyx-tube is densely covered with pale, spreading, curved, linear-lanceolate, acuminate, long, very slightly fimbriate, rather stiff paleae. The flowers are terminal and solitary. It seems to be most closely allied to the Philippine *Melastoma lanaense* Merr., but is very different from that species.

#### MEDINILLA Gaudichaud

**MEDINILLA CRISPATA** (Linn.) Blume in *Flora* 14 (1831) 517.

*Melastoma crispatum* Linn. Sp. Pl. ed. 2 (1762) 560 (type!).

*Funis muraenarum mas* Rumph. Herb. Amb. 5: 66, t. 35, f. 1.

AMBOINA, Kati-kati and Gelala, *Robinson Pl. Rumph. Amb.* 509, <sup>510</sup>, October 19 and September 19, 1913, climbing on trees, altitude 40 to 70 meters.



This is a very characteristic species; it is well figured by Rumphius, and accordingly its synonymy is very simple. *Funis muraenarum mas* Rumph. is the whole basis of *Melastoma crispatum* Linn., which was transferred to *Medinilla* by Blume in 1831. Linnaeus first erroneously reduced it to *Melastoma malabathricum* Linn., in Stickman Herb. Amb. (1754) 19, but soon recognized the error and in the reprint of Stickman's paper, Amoen. Acad. 4 (1759) 128, he excluded the reduction to *Melastoma malabathricum* and still later, in 1762, made the Rumphian description and figure the type of *Melastoma crispatum* Linn.

**MEDINILLA MACROCARPA** Blume in Flora 14 (1831) 510; Rumphia 1 (1835) 14, t. 2.

*Frutex muraenarum femina* Rumph. Herb. Amb. 5: 67, t. 35, f. 2.

AMBOINA, Lateri, Robinson Pl. Rumph. Amb. 569, August 25, 1913, in forests, altitude about 250 meters.

This is certainly the correct disposition of *Frutex muraenarum femina* Rumph., the reduction having been made by Blume, whose description and figure, however, were based on Amboina specimens collected by Zippel.

**MEDINILLA** sp.

*Funis muraenarum* III Rumph. Herb. Amb. 5: 67.

This should be a very characteristic species, judging from Rumphius's description, which calls for a vine with solitary (that is, alternate) leaves, 8 to 10 inches long and 5 to 6 inches wide, long-acuminate, with 10 or 11 oblique nerves and many transverse nervules. Blume, Rumphia 1 (1835) 15, referred it to *Medinilla crassinervia* Blume, with which, however, it does not at all agree. Its exact status must await further botanical exploration of Amboina.

#### ASTRONIA Noronha

**ASTRONIA PAPETARIA** Blume in Flora 14 (1831) 526; Rumphia 1 (1835) 20, t. 6.

*Pharmacum papetarium* Rumph. Herb. Amb. 4: 134, t. 69.

AMBOINA, Way tommo and Soja, Robinson Pl. Rumph. Amb. 513, 514, August 19 and October 14, 1913, in light forests, altitude 50 to 325 meters, locally known as *daun tabal*.

Blume's description and figure were based on specimens collected in Amboina by Zippel, and he reduced here *Pharmacum papetarium* Rumph., which is certainly the correct disposition of it, and a reduction that has been accepted by all subsequent authors. The species is known only from Ternate and Amboina.

## OENOTHERACEAE

## JUSSIEUA Linnaeus

**JUSSIEUA SUFFRUTICOSA** Linn. Sp. Pl. (1753) 388.

*Herba vitilaginum* Rumph. Herb. Amb. 6: 49, t. 21, f. 1.

AMBOINA, Robinson Pl. Rumph. Amb. 259, July 25, 1913, in wet places near the town of Amboina.

*Herba vitilaginum* was reduced by Linnaeus to *Jussieuia suffruticosa*, in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, but in his Systema, ed. 10 (1759) 1021, he erroneously cited t. 41 instead of t. 21. In the second edition of his Species Plantarum (1762) 556 he erroneously placed it under *Jussieuia erecta* Linn., an American species. By other authors it has been placed under *Jussieuia angustifolia* Lam. Encycl. 3 (1789) 331, Lamarck himself citing the Rumphian description and figure as possibly or probably representing his species. The actual type was a Javan specimen, and the species does not appear to be specifically distinct from the older *J. suffruticosa* Linn.

## ARALIACEAE

## OSMOXYLON Miquel

**OSMOXYLON UMBELLIFERUM** (Lam.) comb. nov.

*Aralia umbellifera* Lam. Encycl. 1 (1783) 224 (type!).

*Hedera umbellifera* DC. Prodr. 4 (1830) 262 (type!).

*Hedera amboinensis* DC. ex Boerl. in Ann. Jard. Bot. Buitenz. 6 (1887) 124, in syn.

*Gastonia saururoides* Roxb. Hort. Beng. (1814) 90, nomen nudum.

*Gastonia sasuiroides* Roxb. Fl. Ind. ed. 2, 2 (1832) 408.

*Osmoxylon amboinense* Miq. Ann. Mus. Bot. Lugd.-Bat. 1 (1863) 6.

*Pseudo-Santalum amboinense* Rumph. Herb. Amb. 2: 54, t. 12.

This species is not represented in our Amboina collections and is not definitely known to be represented by Amboina specimens in any herbarium. *Pseudo-santalum amboinense* Rumph. which is excellently figured, is the whole basis of *Aralia umbellifera* Lam.; and this, being the earliest valid specific name for the species, is here adopted. The figure is cited by de Candolle and by Miquel, while Boerlage, Ann. Jard. Bot. Buitenz. 6 (1887) 124, confines *Osmoxylon amboinense* Miq. to the Amboina plant originally described and figured by Rumphius, redescribing the New Guinea specimen, cited by Miquel, as *Osmoxylon miquelii* Boerl. Amboina material is necessary for study and comparison, however, before the relationships of the two forms

can be satisfactorily determined. *Gastonia sasuroides* Roxb. (or *saururoides*) is a probable synonym, as suggested by Miquel; in literature generally it is given as *G. saururoides* Roxb., as originally printed in the Hortus Bengalensis. However, in Roxburgh's Flora Indica it is given as *G. sasuroides*. In the very short description the Rumphian figure is cited as being nearly allied, and the specific name was taken from the local name *sasuru*, cited by Rumphius. Roxburgh's type was from the Moluccas.

## BOERLAGIODENDRON Harms

**BOERLAGIODENDRON PALMATUM** (Lam.) Harms in Engl. & Prantl Nat. Pflanzenfam. 3<sup>8</sup> (1894) 31.

*Aralia palmata* Lam. Encycl. 1 (1783) 224 (type!).

*Trevesia zippeliana* Miq. Ann. Mus. Bot. Lugd. Bat. 1 (1863) 11.

*Trevesia moluccana* Miq. in Bonplandia 4 (1856) 137, Fl. Ind. Bat. 1<sup>1</sup> (1857) 748.

*Eschweilera palmata* Zipp. ex Boerl. in Ann. Jard. Bot. Buitenz. 6 (1887) 116, t. 14.

*Unjala bifida* Reinw. ex Boerl. l. c.

*Osmoxylon moluccanum* Becc. Malasia 1 (1878) 195.

*Osmoxylon zippelianum* Becc. l. c.

**Folium polypi mas** (et femina?) Rumph Herb. Amb. 4: 101, t. 43.

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb. 389*, September 5, 1913, in light forests, altitude 20 meters; Soja, *Robinson Pl. Rumph. Amb. 388*, August 31, 1913, in forests, altitude 375 meters, locally known as *papaya utan* and *poppya utan*.

*Folium polypi* as figured and described by Rumphius is the whole basis of *Aralia palmata* Lam., which supplies the oldest valid specific name for this rather much-named species. All early authors, who had occasion to consider it, followed Lamarck in this reduction; but Miquel, overlooking the fact that the Rumphian figure and description typified *Aralia palmata* Lam., referred it to *Trevesia moluccana* Miq. The synonymy is given by Boerlage, Ann. Jard. Bot. Buitenz. 6 (1887) 116, who in taking up Zippel's unpublished name *Eschweilera* overlooked or ignored, as a synonym of *Lecythis*, the previous use of the same name by Martius for a South American genus of *Lecythidaceae*; *Eschweilera* Mart. is now recognized as a valid genus distinct from *Lecythis*. Harms accordingly proposed the new generic name *Boerlagiodendron*, no other being available for the plants Boerlage placed in *Eschweilera* Zipp. Boerlage gives an ample description of the species and an excellent illustration and cites specimens from Amboina, Banda, and Celebes.

## SCHEFFLERA Forster

## SCHEFFLERA sp.

*Brassaia littorea* Seem. Journ. Bot. 2 (1864) 244 (type!).

*Papaja litorea* Rumph. Herb. Amb. 1: 150, t. 52.

This species is not represented in our Amboina collections. *Brassaia littorea* Seem. was based wholly on Rumphius's figure and description. As its status is entirely uncertain, no direct transfer is here made to *Schefflera*, where *Papaja litorea* Rumph. manifestly belongs. Walpers, Repert. 2 (1843) 430, reduced it to *Aralia longifolia* Reinw., the original publication of which I have not seen, but which is apparently the same as the Javanese *Sciodaphyllum longifolium* Blume; in Index Kewensis the latter is given as a synonym of *Brassaia littorea* Seem. It has also been referred to *Paratropia longifolia* DC. by DeVriese, Pl. Ind. Bat. Or. (1845) 89, and was mentioned by Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1856-57) 760, following *Paratropia macrostachya* Miq., as a possible representative of *Paratropia*. Teysmann, cited by Hasskarl, Neue Schlüssel (1866) 20, thought that it might possibly be *Paratropia macrostachya* Miq. The species is such a characteristic one and has such large leaflets and long petioles, that it should be readily recognized when once collected in Amboina.

## POLYSCIAS Forster

**POLYSCIAS NODOSA** (Blume) Seem. in Journ. Bot. 3 (1865) 181.

*Aralia nodosa* Blume Bijdr. (1826) 873.

*Paratropia nodosa* DC. Prodr. 4 (1830) 265.

*Hedera nodosa* Hassk. in Hoen. & De Vriese Tijdschr. Nat. Gesch. 10 (1843) 131.

*Aralia umbraculifera* Roxb. Hort. Beng. (1814) 22, *nomen nudum*. Fl. Ind. ed. 2, 2 (1832) 108.

*Eupteron nodosum* Miq. in Bonplandia 4 (1856) 139; Fl. Ind. Bat. 1<sup>1</sup> (1857) 762.

*Papaja silvestris* Rumph. Herb. Amb. 1: 149, t. 53, f. 1.

AMBOINA, Ermes, Robinson Pl. Rumph. Amb. 386, August 9, 1913, on forested hillsides, altitude about 250 meters, locally known as *pota tulan* and *patu tulong*.

The figure is very poor and is scarcely recognizable as *Polyscias nodosa* Seem., yet the description applies unmistakably to this species. Willdenow, Sp. Pl. 2 (1799) 549, misled by the very poor figure, erroneously referred it to *Bergera koenigii* Linn. Roxburgh, Fl. Ind. ed. 2, 2 (1832) 108, cites it as a synonym of his *Aralia umbraculifera*, which was described from specimens cultivated in the botanic garden at Calcutta, originating in the Moluccas, and which is an exact synonym of

*Polyscias nodosa* Seem. Miquel cites it as a synonym of *Eupteron nodosum* (Blume) Miq., while Seemann quotes it in the original transfer of the species to *Polyscias* as cited above.

#### NOTHOPANAX Miquel

##### NOTHOPANAX SCUTELLARIUM (Burm. f.) comb. nov.

*Crassula scutellaria* Burm. f. Fl. Ind. (1768) 78.

*Aralia cochleata* Lam. Encycl. 1 (1783) 224 (type!).

*Panax cochleatum* DC. Prodr. 4 (1830) 253 (type!).

*Panax scutellarioides* Reinw. in Blume Bijdr. (1826) 880.

*Nothopanax cochleatum* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1857) 766.

*Scutellaria prima* Rumph. Herb. Amb. 4: 75, t. 31.

This commonly cultivated and characteristic shrub is not represented in our Amboina collections. The first post-Linnean description of the species seems to be that of Burman f., whose specific name is here adopted. Burman cites *Scutellaria prima* Rumph. as a synonym of his *Crassula scutellaria*, but by error cites the illustration as t. 30 instead of t. 31. Rumphius's figure and description are the whole basis of *Aralia cochleata* Lam., and hence of *Panax cochleatum* DC. and of *Nothopanax cochleatum* Miquel. The Rumphian figure has for the most part been cited in literature under the names *Panax cochleatum* DC. and *Aralia cochleata* Lam.

##### NOTHOPANAX TRICOCHELEATUM Miq. Fl. Ind. Bat. Suppl. (1862) 340.

*Panax rumphii* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 220 (Neue Schlüssel 78) (type!).

*Scutellaria secunda latifolia* Rumph. Herb. Amb. 4: 76.

This cultivated form is not represented in our Amboina collections. *Panax rumphii* Hassk. was based wholly on the Rumphian description and has been overlooked by all subsequent authors; it is not included in Index Kewensis. From the description compiled by Hasskarl and from Rumphius's original and more ample description, I can see no reason for considering it other than *Nothopanax tricochleatum* Miq. The form described by Rumphius in this chapter as *daulæ* probably belongs in *Nothopanax*, but the description is too indefinite to warrant its certain reduction.

##### NOTHOPANAX PINNATUM (Lam.) Miq. Fl. Ind. Bat. 1<sup>1</sup> (1857) 766.

*Panax pinnatum* Lam. Encycl. 2 (1788) 715 (type!).

*Panax ? secundum* Schultes Syst. 6 (1820) 215 (type!).

*Polyscias rumphiana* Harms in Engl. & Prantl Nat. Pflanzenfam 3<sup>1</sup> (1894) 45.

*Scutellaria secunda angustifolia* Rumph. Herb. Amb. 4: 76, t. 32.

This species is not represented in our Amboina collections.

A form that almost certainly represents the Rumphian plant is in cultivation in the botanic garden at Buitenzorg, Java, "XIII-J-31," which originated in the Moluccas. The Rumphian description and figure are the whole basis of *Panax pinnatum* Lam. and *Panax secundum* Schultes and hence of *Nothopanax pinnatum* Miq. Most authors have followed Lamarck and cite the Rumphian plant as *Panax pinnatum* Lam. The species is as yet very imperfectly known, and its relationship to several forms distinguished in comparatively recent years in horticultural literature is obscure, such as *Aralia maculata* Truff., *Aralia guilfoylei* Cogn. & March., etc. *Polyscias rumphiana* Harms was proposed by Harms in transferring the species to *Polyscias*, on account of the earlier *Polyscias pinnata* Forst. However, Schultes's name was available, although overlooked by Doctor Harms.

**NOTHOPANAX FRUTICOSUM** (Linn.) Miq. Fl. Ind. Bat. 1 (1857) 765.

*Panax fruticosum* Linn. Sp. Pl. ed. 2 (1763) 1513.

*Scutellaria tertia* Rumph. Herb. Amb. 4: 78, t. 33.

AMBOINA, Robinson Pl. Rumph. Amb. 387, September 25, 1913, cultivated or semicultivated, near the town of Amboina, locally known as *pagar pagar*.

The Rumphian name and figure are cited by Linnaeus in the original description of the species, and in this reduction he has been consistently followed by nearly all authors. I prefer, however, to follow Miquel in considering the species under *Nothopanax*. Harms, in Engl. and Prantl Nat. Pflanzenfam. 3 (1894) 43-45, places all species of *Nothopanax* under *Polyscias*.

#### PANAX Linnaeus

**PANAX GINSENG** C. A. Mey. in Bull. Phys.-Math. Acad. Pétersb. 1 (1843) 340.

*Radix sinica* Rumph. Herb. Amb. 7: 42, t. 21, f. 1.

There is little doubt that the plant discussed by Rumphius is the common Chinese ginseng, but the figure given by Rumphius, other than that of the root, appears to be largely imaginary. Henschel referred it to *Sium ninsi* Linn., a species the status of which is not understood; it may prove to be the oldest name for *Panax ginseng*. Hasskarl, Neue Schlüssel (1866) 190, placed it under *Sium siarum* Linn. var. *ninsi* DC.; both this reduction and the one suggested above are open to serious objections, although the matter of the exact identity of the plant Rumphius discussed is of slight importance, as no question of nomenclature is involved.

## UMBELLIFERAE

## CENTELLA Linnaeus

**CENTELLA ASIATICA** (Linn.) Urban in Mart. Fl. Bras. 11<sup>1</sup>: 287.

*Hydrocotyle asiatica* Linn. Sp. Pl. (1753) 234.

*Pes equinus* Rumph. Herb. Amb. 5: 455, t. 169, f. 1.

AMBOINA, Soja road, *Robinson Pl. Rumph. Amb.* 326, August 1, 1913, common up to an altitude of 300 meters.

The reduction of *Pes equinus* to *Hydrocotyle asiatica* was first made by Linnaeus, in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 133, Syst. ed. 10 (1759) 953, Sp. Pl. ed. 2 (1762) 338, which has been followed by many succeeding authors. Loureiro, Fl. Cochinch. (1790) 176, cites the Rumphian figure as representing the new genus and species *Trisanthus cochinchinensis* Lour., which is a synonym of *Centella asiatica* (Linn.) Urban.

## ANTHERISCUS Bernhardt

**ANTHERISCUS** sp.?

*Levisticum indicum* Rumph. Herb. Amb. 5: 269, t. 93, f. 3.

Nothing resembling this is represented in our Amboina collections, and *Levisticum indicum* Rumph. has never been satisfactorily reduced. Loureiro, Fl. Cochinch. (1790) 179, places it under *Bubon macedonicus* Linn.=*Athamantha macedonica* Spreng., while Henschel thought it might be *Ligusticum striatum* Roxb.=*Selinum striatum* Benth. & Hook. f.; the range of this, Himalayan, makes the suggested reduction of Rumphius's *Levisticum indicum* an impossible one. Hasskarl, Neue Schlüssel (1866) 119, mentions the resemblance of the figure to *Apium involucratum* Roxb. and *Cnidium diffusum* DC. Field work and a critical study of the various species of *Umbelliferae* cultivated in the Malay Archipelago should solve the problem of the status of *Levisticum indicum*, as Rumphius states that the plant was cultivated only, and that it was rare in Amboina, but more abundant in Java and Ternate. It may prove to be *Antheriscus cereifolium* Hoffm., which Koorders reports from Java, but should be critically compared with *Ligusticum acutilobum* Sieb. & Zucc.

## CARUM Ruppius

**CARUM COPTICUM** (Linn.) Benth. ex C. B. Clarke in Hook. f. Fl. Brit. Ind. 2 (1879) 682.

*Ammi copticum* Linn. Mant. 1 (1767) 56.

*Ligusticum ajowan* Roxb. Hort. Beng. (1814) 21, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 91.

*Ptychotis ajowan* DC. Prodr. 4 (1830) 109.

*Carum* Rumph. Herb. Amb. 5: 270.

*Amudium* Rumph. Herb. Amb. 5: 270.

The form described by Rumphius under the name *Carum* is unquestionably *Ptychotis ajowan* DC.=*Carum copticum* Benth., for which Rumphius cites the native names *aydjuan* and *djintam soa*. Henschel thought that it might be de Candolle's species. *Amudium* was thought by Henschel to be *Ptychotis roxburghiana* DC.=*Carum roxburghianum* Benth. It is certainly identical with the Philippine form described by Blanco as *Ammi glaucifolium* (non Linn.) Blanco Fl. Filip. (1837) 213=*Daucus anisodorus* Blanco op. cit. ed. 2 (1845) 150, for which he cites the native name *lamudio*. Rumphius took his data regarding *Amudium* from Nieremberg's description of the Philippine plant.

Of uncertain status, other than that it is an umbelliferous plant, is *Mussi* Rumph. Herb. Amb. 5: 271. It may be *Carum carvi* Linn., but the description is too indefinite to be at all certain. *Mussi* is given by Rumphius as the Javanese name.

#### CRITHMUM Linnaeus

CRITHMUM MARITIMUM Linn. Sp. Pl. (1753) 246.

*Crithamus verus* Rumph. Herb. Amb. 6: 166, t. 72, f. 2.

The plant discussed is the European *Crithmum maritimum* Linn., and it was apparently figured from European specimens.

#### MYRSINACEAE

##### MAESA Forskål

MAESA TETRANDRA (Roxb.) A. DC. Prodr. 8 (1844) 82.

*Baeobotrys tetrandra* Roxb. Fl. Ind. 2 (1824) 233.

*Maesa amboinensis* Scheff. Comm. Myrsin. Archip. Ind. (1867) 29.

*Perlarius II* Rumph. Herb. Amb. 4: 122, t. 57.

AMBOINA, Mahija, Koesoekoesoe sereh, Amahoesoe, and town of Amboina, Robinson Pl. Rumph. Amb. 241, 242, 234, July to October, 1913, in thickets and light forests, sea level to an altitude of 300 meters, locally known as *kayo mani mani*.

*Perlarius II* Rumph. was reduced by Loureiro, Fl. Cochinch. (1790) 124, to *Dartus perlarius* Lour., the specific name being taken from Rumphius. The plant actually described was from Cochinchina and manifestly is not the same as the Amboina one figured and described by Rumphius. In this erroneous reduction Loureiro has been followed by Poiret, Roemer and



Schultes, Henschel, Kosteletzky, Don, Endlicher, Walpers, Pritzel, A. de Candolle, and Miquel. Rumphius's figure, while crude, is a fair representation of *Maesa tetrandra* A. DC., the type of which was from the Moluccas, probably Amboina, while the description applies perfectly. I consider the correctness of this reduction absolutely certain.

The form described in the same chapter as *Perlarius III silvestris* is one of uncertain status. It may be an allied species of *Maesa* or may refer to a species of some other genus or even of some other family; Teysmann, quoted by Hasskarl, *Neue Schlüssel* (1866) 84, thought that it might be a *Callicarpa*.

#### AEGICERAS Gaertner

**AEGICERAS CORNICULATUM** (Linn.) Blanco Fl. Filip. (1837) 79.

*Rhizophora corniculata* Linn. in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 123 (type!).

*Rhizophora aegiceras* Gmel. Syst. (1791) 747.

*Aegiceras majus* Gaertn. Fruct. 1 (1788) 216, t. 46.

*Aegiceras minus* Gaertn. Fruct. 1 (1788) 216 p. p., quoad syn. Rumph.

*Umbraculum corniculatum* O. Kuntze Rev. Gen. Pl. 1 (1891) 405.

*Mangium fruticans I corniculatum* Rumph. Herb. Amb. 3: 117, t. 77.

*Umbraculum maris ceramense* Rumph. Herb. Amb. 3: 124, t. 82.

*Umbraculum maris amboinense* Rumph. Herb. Amb. 3: 124.

AMBOINA, Ayer putri, Robinson Pl. Rumph. Amb. 254, July 28, 1913, along tidal streams, locally known as *brappat*.

*Mangium fruticans I corniculatum* Rumph. is the whole basis of *Rhizophora corniculata* Linn.=*Aegiceras corniculatum* (Linn.) Blanco, as cited in Stickman, Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 123, Syst. ed. 10 (1759) 1043, Sp. Pl. ed. 2 (1762) 635. It has also been cited by various authors under *Aegiceras majus* Gaertn. and under *Aegiceras fragrans* Koenig, both synonyms of *Aegiceras corniculatum* (Linn.) Blanco. *Umbraculum maris ceramense* Rumph. is manifestly the same as *Mangium fruticans I corniculatum* Rumph. and was reduced by Gaertner, Fruct. 1 (1788) 216, to *Aegiceras minus* Gaertn. in the original description of that species. *Aegiceras minus* Gaertn. is, however, to be typified by the species figured by him, a Ceylon plant, which is *Rourea santaloides* (Vahl) W. & A.=*Rourea minor* (Gaertn.). Willdenow, Persoon, Poiret, Roemer and Schultes, Sprengel, Henschel, Spanoghe, de Candolle, Pritzel, and Miquel have followed Gaertner in this reduction, but *Aegiceras minus* Gaertn., in part, only as to the Rumphian synonym, is *Aegiceras corniculatum* (Linn.) Blanco. *Umbraculum maris amboinensis* Rumph. is placed here after Mez in Engl.

Pflanzenreich 9 (1902) 56, but may well be the same as *Aegiceras floridum* Roem. & Schultes.

**AEGICERAS FLORIDUM** Roem. & Schultes Syst. 4 (1819) 512 (type!).

*Aegiceras ferreum* Blume Bijdr. (1826) 693.

*Aegiceras nigricans* A. Rich. Voy. Astrolabe 2 (1834) 57, t. 21.

*Mangium floridum* Rumph. Herb. Amb. 3: 125, t. 83.

*Mangium ferreum mas* Rumph. Herb. Amb. 3: 120 p. p., quoad t. 79, f. A, B.

*Mangium fruticans II parvifolium* Rumph. Herb. Amb. 3: 117.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 253, October 31, 1913, along the seashore.

*Mangium floridum* Rumph. is the whole basis of *Aegiceras floridum* Roem. & Schultes, a species very different from *Aegiceras corniculatum* (Linn.) Blanco. The flowering and fruiting branchlets figured on t. 79, f. A, B, under *Mangium ferreum* Rumph. are also manifestly referable to *Aegiceras floridum* R. & S., although *Mangium ferreum* Rumph. is for the most part *Pemphis acidula* Forst. (see p. 382). *Mangium fruticans II parvifolium* Rumph. is also apparently referable to this species, judging from the description; while *Umbraculum maris amboinense* Rumph., Herb. Amb. 3: 124, may be referable to *Aegiceras floridum* R. & S., rather than to *Aegiceras corniculatum* (Linn.) Blanco where I have placed it.

## PLUMBAGINACEAE

### PLUMBAGO Linnaeus

**PLUMBAGO INDICA** Linn. in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 133 (type!).

*Plumbago rosea* Linn. Sp. Pl. ed. 2 (1762) 215.

*Plumbago coccinea* Salisb. Prodr. (1796) 122.

*Radix vesicatoria* Rumph. Herb. Amb. 5: 453, t. 168.

AMBOINA, Way tommo, Robinson Pl. Rumph. Amb. 221, August 16, 1913.

*Plumbago indica* Linn., validly published by citation of Rumphius, is not included in Index Kewensis, and this specific name has been entirely overlooked by all botanists. Linnaeus, Systema, ed. 10 (1759) 921, abandoned the name *Plumbago indica* and erroneously referred *Radix vesicatoria* to *Plumbago zeylanica* Linn. In the Species Plantarum, ed. 2 (1762) 215, he referred it correctly to *Plumbago rosea* Linn., but this now becomes a synonym of the older name, *Plumbago indica* Linn. The description is unmistakably that of the plant commonly known as *Plumbago rosea* Linn. and as *P. coccinea* Salisb.; the figure is not particularly good, although manifestly a *Plumbago*.

## SAPOTACEAE

PAYENA A. de Candolle

**PAYENA LEERII** (Teysm. & Binn.) Kurz in Journ. As. Soc. Beng. 40<sup>2</sup> (1871) 69.

*Azola leerii* Teyism. & Binn. in Nat. Tijdschr. Nederl. Ind. 6 (1854) 116.

*Haploceras ? arupa* Hassk. in Abhandl. Naturf. Gesellsch. Halle 9 (1866) 193 (Neue Schlüssel 51) (type!).

*Arupa* Rumph. Herb. Amb. 3: 66, t. 38.

Under *Arupa* Rumphius briefly describes two forms which he indicates as *Arupa alba* and *Arupa rubra*. He distinctly states that the flowers and fruits were unknown to him, yet figures a plant with fruits, probably the one mentioned in the postscript following the original description. *Arupa alba* Rumph. is the whole basis of *Haploceras arupa* Hassk., a name not listed in Index Kewensis. The illustration, and for that matter the description, applies fairly well to *Payena leerii* Kurz, a species already reported from Amboina by Burck in Ann. Jard. Bot. Buitenz. 5 (1885) 56. This may, however, prove not to be the correct disposition of *Arupa*, but this matter can be definitely determined only after a more comprehensive exploration of Amboina. The form very imperfectly described as *Arupa rubra* probably pertains to some entirely different plant, but its status is wholly problematical and cannot be determined from the description. The figure might pass for *Cratogeomys formosum* Dyer, but the indicated size of the leaves and the fruit characters, as given in the description, make this identification an impossible one.

**PALAEQUIM Blanco**

**PALAEQUIM AMBOINENSE** Burck in Ann. Jard. Bot. Buitenz. 5 (1885) 37.

*Cicadaria latifolia* Rumph. Herb. Amb. 3: 210, t. 135?

The figure conforms fairly well with specimens of Burck's species taken from trees cultivated in the botanic garden at Buitenzorg, Java. The correctness of the reduction, however, is very doubtful. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 68, referred it to the *Sapotaceae*, where it certainly belongs.

The forms described in this chapter as *Cicadaria angustifolia* and as *C. zeylanica* are undeterminable, and probably neither belongs in this family.

**PALAEQUIM** sp.?

*Sicchius I mas* Rumph. Herb. Amb. 3: 40, t. 21?

*Sicchius I mas* is of very doubtful status, and the description

is possibly a mixture of the characters of two different species. Hasskarl, *Neue Schlüssel* (1866) 48, quotes it under *Hapaloceras leerii* Hassk.=*Keratophorus leerii* Hassk.=*Payena leerii* Kurz, where it certainly does not belong; at least the form figured by Rumphius. He also suggests that it is an *Aegiceras*, an equally wrong disposition of it. Teysmann, quoted by Hasskarl, considered that it belonged to the *Sapotaceae*. The description and the plate indicate *Sapotaceae*, but no species is known to me that conforms with the characters indicated by Rumphius. The drawing of the fruit certainly represents no sapotaceous plant, and it does not conform with Rumphius's description. The name *sicki* in Amboina appears to be applicable to *Litsea*, but the plant figured and described is no lauraceous species.

#### SIDEROXYLON Linnaeus

**SIDEROXYLON MICROCARPUM** Burck in *Ann. Jard. Bot. Buitenz.* 5 (1885) 17.

*Arbor facum major* Rumph. *Herb. Amb.* 3: 77, t. 49.

Rumphius's figure is an excellent one and unmistakably represents a *Sideroxylon*, and I believe *S. microcarpum* Burck in spite of the discrepancies between the fruit as figured by Rumphius and as described by Burck. The type of *Sideroxylon microcarpum* Burck was from Amboina, with the native names *ay-lapei* and *kajoe lapei-lapei*; two names cited by Rumphius are *caju lobe* and *caju lape-lape*. The figure agrees very closely with flowering specimens from trees cultivated in the botanic garden at Buitenzorg. Lamarck, *Encycl.* 3 (1789) 234, cites it with doubt under *Bassia longifolia* Lam., where it manifestly does not belong. The only other suggested identification of it is Teysmann's reference of it to the *Sapotaceae*, as quoted by Hasskarl.

#### SIDEROXYLON sp.

*Sicchius II femina* Rumph. *Herb. Amb.* 3: 41, t. 22?

The figure certainly represents a sapotaceous plant and is probably a species of *Sideroxylon* as placed by Teysmann in Hassk. *Neue Schlüssel* (1866) 49. It has, however, much the appearance of *Payena leerii* Kurz, which is known from Amboina. The brief description given by Rumphius does not agree with the figure as to fruit characters. It is certainly no *Elaeocarpus* as suggested by Hasskarl. The form briefly described as *Sicchius III* in this chapter is entirely undeterminable.

## SIDEROXYLON sp.

*Lignum eurinum* Rumph. Herb. Amb. 3: 63, t. 35.

There is no previous reduction of *Lignum eurinum* Rumph. except Hasskarl's tentative suggestion that it might be *Melanthesia* or *Maesa*. The presence of milky sap, mentioned by Rumphius in the description, invalidates these suggested reductions. The plant is undoubtedly a species of *Sideroxylon*; it closely matches specimens from plants cultivated in the botanic garden at Buitenzorg distributed as *Sideroxylon attenuatum* A. DC., var. *amboinense* Scheff. If these are correctly named, they are certainly specifically distinct from *Sideroxylon attenuatum* A. DC.

## MIMUSOPS Linnaeus

MIMUSOPS ELENGI Linn. Sp. Pl. (1753) 349.

*Flos cuspidum* Rumph. Herb. Amb. 2: 189, t. 63.

This common and well-known species is not represented in our Amboina collections. Rumphius states that it was an introduced plant in Amboina, as it is in most parts of the Malayan region. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 121, Syst. ed. 10 (1759) 1000, Sp. Pl. ed. 2 (1762) 497, which is manifestly the correct disposition of *Flos cuspidum* and has been accepted by all authors.

MIMUSOPS PARVIFOLIA R. Br. Prodr. (1810) 531.

*Tanjonus litorea* Rumph. Herb. Amb. 2: 193, t. 64.

Not represented in our Amboina collections. The species is manifestly a *Mimusops*, and I cannot distinguish it from a large series of specimens from the coastal regions in the Philippines, others from Celebes, and others from New Caledonia that I believe represent *Mimusops parvifolia* R. Br. Hasskarl, Neue Schlüssel (1866) 39, states "ob calycem quadripartitum insignis arbor et Mimusopi aliena;" while Teysmann, quoted by Hasskarl, l. c., referred it to *Uvaria tripetala* Roxb. Burman f., Fl. Ind. (1768) 86, reduced it to *Mimusops elengi* Linn. The whole description, except the 4-parted calyx, native names, etc., is *Mimusops*, and the figure is an excellent representation of *Mimusops*, with some of the calyces indicated as 5-parted, while Rumphius definitely states that the flowers and fruits are very similar to those of the domesticated *tanjonus*, that is, the form considered by him in the preceding chapter, *Mimusops elengi* Linn.

**MIMUSOPS KAUKI** Linn. Sp. Pl. (1753) 349.

*Metrosideros macassarensis* Rumph. Herb. Amb. 3: 19, *t.* 8.

This reduction was originally made by Linnaeus, in Stickman Herb. Amb. (1754) 11, Amoen. Acad. 4 (1759) 122, Syst. ed. 10 (1759) 1000, Sp. Pl. ed. 2 (1763) 497, which has been accepted by most authors and is probably the correct disposition of the Rumphian species. Rumphius's material was from Celebes, not from Amboina. Lamarck, Encycl. 4 (1797) 186, referred it to *Mimusops obtusifolia* Lam., but this species was based on actual specimens, and it may or may not prove to be the same as *Mimusops kauki* Linn. Hasskarl, Neue Schlüssel (1866) 47, considered that the flowers represented by *t.* 8 were referable to *Mimusops manilkara* Don, but this species is supposed to be a synonym of *Mimusops kauki* Linn.

**SAPOTACEAE** indet.

*Vidoricum silvestre* II Rumph. Herb. Amb. 3: 184.

Gaertner, Fruct. 2 (1794) 104, mentions this in the original description of *Bassia dubia* Gaertn. as possibly representing that species. *Bassia dubia* Gaertn. is an entirely doubtful species of which the flowers and leaves are unknown. Its country of origin is also unknown, except that it probably came from the Indo-Malayan region.

**SAPOTACEAE** indet.

*Vidoricum silvestre* IV Rumph. Herb. Amb. 3: 185, *t.* 118.

The form figured is possibly a species of *Sideroxylon*, but the figure does not conform especially well with the description of *Vidoricum silvestre* IV, which it is supposed to represent. It may be the form of *Vidoricum* that Gaertner intended to cite under *Bassia dubia* Gaertn., but he does not mention the figure. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 65, thought that it might be a *Diospyros*. This is possibly the correct disposition of the description, but is manifestly not the correct disposition of the figure.

The other forms described under *Vidoricum* are all indeterminate from data at present available. They are as follows:

*Vidoricum silvestre* II var. Rumph. Herb. Amb. 3: 184.

*Vidoricum* III Rumph. Herb. Amb. 3: 185.

*Vidoricum* V Rumph. Herb. Amb. 3: 185.

*Vidoricum* VI Rumph. Herb. Amb. 3: 186.

**SAPOTACEAE** indet.

*Lignum clavorum* Rumph. Herb. Amb. 3: 97, *t.* 64.

This was placed by Henschel, with doubt, under *Calophyllum*

*spurium* Choisy, in Vita Rumph. (1833) 156, following Rumphius's comparison of it with *Tsjerou-Ponna* of Rheede, Hort. Malabar. 4: 81. Its status is indeterminable from the data at present available, although it undoubtedly belongs in the *Sapotaceae*. This was Teysmann's disposition of it, as quoted by Hasskarl, Neue Schlüssel (1866) 55.

## EBENACEAE

## MABA Forster

**MABA BUXIFOLIA** (Rottb.) Pers. Syn. 2 (1807) 606?

*Pisonia* ? *buxifolia* Rottb. in Nye Saml. Kong. Danske Skrift. 2 (1783) 536, t. 4, f. 2.

*Maba ebenus* Spreng. Syst. 2 (1825) 126 (type!).

*Ebenus* Rumph. Herb. Amb. 3: 1, t. 1.

Nothing resembling this is represented in our Amboina collections. Loureiro, Fl. Cochinch. (1790) 613, discusses it under his *Ebenoxylum verum*, which manifestly is a species of *Maba*, but certainly not *Maba elliptica* Forst. where it was placed by Hiern, Trans. Cambr. Philos. Soc. 12 (1873) 122. Loureiro's species must be interpreted from his original specimens or, failing these, from Cochinchina material. It is apparently a form of *Maba buxifolia* Pers. or a closely allied species. *Maba ebenus* Spreng. is based wholly on Rumphius and must be interpreted from the Rumphian figure and description. From Rumphius's description of the flower as 3-merous the species is a *Maba*, not a *Diospyros*.

*Ebenus e* Madagascar Rumph. Herb. Amb. 3: 6 is indeterminable; Hasskarl, Neue Schlüssel (1866) 46, suggested that it might be *Maba madagascariensis* A. DC.

## DIOSPYROS Linnaeus

**DIOSPYROS MARITIMA** Blume Bijdr. (1825) 669.

*Ebenus molucca* Rumph. Herb. Amb. 3: 6, t. 2.

Nothing resembling this species is presented by our Amboina collections. *Ebenus molucca* Rumph. is certainly a species of *Diospyros*, and it is either *D. maritima* Blume or a very closely allied form. Miquel, Fl. Ind. Bat. 2 (1859) 1049, suggested that the Rumphian plant pertained to *Diospyros*, but no further determination of it has been suggested by other authors.

**DIOSPYROS EBENUM** Koen. in Physiogr. Salsk. Handl. 1 (1776) 176?

*Hebenaster* Rumph. Herb. Amb. 3: 13, t. 6.

Nothing resembling this species occurs in our Amboina collections. *Hebenaster* has been referred to *Diospyros ebenaster*

Retz. by various authors, but this does not seem to be the proper disposition of it. I agree with Scott \* that it conforms much better with *Diospyros ebenum* Koen. than with *D. ebenaster* Retz. The exact identity of *Hebenaster* cannot be determined until actual Moluccan specimens are available for comparison. Loureiro, Fl. Cochinch. (1790) 227, erroneously refers it to his *Diospyros decandra*; but Miquel, Fl. Ind. Bat. 2 (1859) 1047, definitely reduces it to *Diospyros ebenum* Koen., and Roxburgh, Fl. Ind. ed. 2, 2 (1832) 529 expresses the same opinion. Still another species is probably represented by *Hebenaster amalyensis* Rumph. Herb. Amb. 3: 15, casually discussed under *Hebenaster*. Native names given by Rumphius are: Amboina, *lolin*, *lorin*, *secur*; Banda, *boa djarong*; Uliassar and Ceram, *ahuelli*.

**DIOSPYROS KAKI** Linn. f. Suppl. (1781) 439.

*Anona sariffa* Roxb. ex Henschel Vita Rumph. (1833) 142 (type!).  
*Khi* Rumph. Herb. Amb. 1: 137.

Rumphius describes one of the Chinese persimmons, which Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 19, refers to *Diospyros kaki* Linn., this doubtless being the correct disposition of it. *Anona sariffa* Roxb., as published by Henschel, does not otherwise appear in botanical literature; it is typified by the Rumphian description and hence becomes a synonym of *Diospyros kaki* Linn. The name is not listed in Index Kewensis.

**DIOSPYROS** sp.?

*Ebenus alba* Rumph. Herb. Amb. 3: 8, *t. 3*.

This may ultimately prove to be no *Diospyros*. The description is fair, but the figure of the infructescence does not look like any *Diospyros* known to me. The reduction follows Teysmann's opinion as quoted by Hasskarl, Neue Schlüssel (1866) 46.

## SYMPLOCACEAE

### SYMPLOCOS Jacquin

**SYMPLOCOS JAVANICA** (Blume) Kurz in Journ. As. Soc. Beng. 40<sup>1</sup> (1871) 64.

*Dicalyx javanicus* Blume Bijdr. (1826) 1117.

*Dicalyx salaccensis* Blume l. c. 1118.

*Symplocos ferruginea* Roxb. Hort. Beng. (1814) 40, *nomen nudum*.  
 Fl. Ind. ed. 2, 2 (1832) 542.

*Arbor aluminosa* Rumph. Herb. Amb. 3: 160, *t. 100*.

*Symplocos javanica* Kurz (*S. ferruginea* Roxb.) is not repres-

\* Kew Bull. (1915) 65-67.



ented in our Amboina collection, but the species has been reported from Amboina, two collections, by Brand. It is barely possible, however, that the Amboina specimens I have referred to *Symplocos syringoides* Brand\* represent *Arbor aluminosa*; one of these specimens bears the native name *kayu reha*, the second and really essential part of this name manifestly corresponding to *leha* cited by Rumphius as the Amboinese name of *Arbor aluminosa*. In size this shrub also agrees with Rumphius's description, but the leaves are but very slightly toothed, while Rumphius's figure presents leaves prominently toothed. Loureiro, Fl. Cochinch. (1790) 315, refers *Arbor aluminosa* to his *Decadia aluminosa*, but *Decadia aluminosa* was actually described from Cochinchina specimens. Loureiro's generic description is faulty, as shown by S. LeM. Moore in Journ. Bot. 42 (1914) 148, who has critically examined Loureiro's type specimen in the herbarium of the British Museum. His conclusion is as follows:

On the whole, I think it likely that *D[icalyx] aluminosa* may be *S[ymplocos] syringoides*, as such it has been written up provisionally in the National Herbarium.

However, *Symplocos syringoides* Brand is a species known only from Amboina, and as species go in *Symplocos* it seems rather improbable that the Cochinchina specimen actually described by Loureiro is identical with the Amboina plant. *Dicalyx aluminosus* Blume, Bijdr. (1826) 1117, was based essentially on specimens from Java and Nusa Kambangan and is *Symplocos aluminosa* (Blume) Brand. Both Loureiro's and Blume's specific names were from Rumphius, but the plants actually described are not *Arbor aluminosa* Rumph. If the synonymy given by Brand, Engl. Pflanzenreich 6 (1901) 40, is correct, the earliest valid specific name is *Symplocos javanica* (Blume) Kurz, for *Symplocos ferruginea* Roxb., 1814, is merely a *nomen nudum*.

Hasskarl, Neue Schlüssel (1866) 186, has suggested that *Parens muscarum* Rumph. Herb. Amb. 7: 16, t. 9, f. 2, may be a *Symplocos*. There is nothing in the description that would indicate this, while the figure presents a seedling or sapling shrub with galls on the leaves. The status of *Parens muscarum* Rumph. is quite undeterminable. The native name cited by Rumphius is *ay lala*.

\* Philip. Journ. Sci. 11 (1916) Bot. 304.

## OLEACEAE

## JASMINUM Linnaeus

**JASMINUM SAMBAC** (Linn.) Ait. Hort. Kew. 1 (1789) 8.

*Nyctanthes sambac* Linn. Sp. Pl. (1753) 6.

*Flos manorae* Rumph. Herb. Amb. 5: 52, t. 30.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 258, August 13, 1913, on limestone formation at an altitude of about 2 meters.

The reduction to *Nyctanthes sambac* was made by Linnaeus in the year following the publication of that species, Stickman Herb. Amb. (1754) 19, and appears in Linnaeus's later publications; but in the more modern literature it is placed under *Jasminum sambac* (Linn.) Ait., this being certainly its proper disposition. Here should be referred not only *Flos manorae* Rumph., but also *Flos manorae plenus* Rumph. l. c. 52, t. 30 A; the latter being the commonly cultivated form of *Jasminum sambac* with double flowers.

## JASMINUM sp.

*Jasminum litoreum* Rumph. Herb. Amb. 5: 54 (non 2: 86, t. 46).

The species described is undoubtedly a true *Jasminum*, and from the description and habitat given by Rumphius I make the suggestion that the plant may prove to be the same as the widely distributed Malayan species, *J. bifarium* Wall. This species, however, does not appear in our Amboina collections. Hasskarl, Neue Schlüssel (1866) 94, made the suggestion that it might be a *Jasminum*, but he was not sure as to the genus and suggested no species. The reference is unimportant, and no other author has even suggested a possible identification for the plant described by Rumphius. *Jasminum litoreum* Rumph. Herb. Amb. 2: 84, t. 46, is *Clerodendron commersonii* (Lam.) Spreng.

## MYXOPYRUM Blume

**MYXOPYRUM MACROLOBUM** A. W. Hill in Kew Bull. (1910) 42.

*Sirioides alter* Rumph. Herb. Amb. 5: 50, t. 29, f. 1?

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 518, October 29, 1913, on trees along the beach. A fruiting specimen.

*Sirioides alter*, as figured by Rumphius, was reduced by Kosteletzky, Allg. Med.-Pharm. Fl. 3 (1834) 1074, to *Strychnos bicirrhosa* Lesch., but is certainly not the species described by Leschenault in Roxb. Fl. Ind. 2 (1824) 267=*S. colubrina* Linn. There are serious objections to the reduction of *Sirioides alter* to *Myxopyrum*, but it is certainly *Myxopyrum* in part. The figure shows a plant with tendrils, which is no *Myxopyrum* but

a *Strychnos* character. *Sirioides*, as described by Rumphius on page 49 and in the same chapter with *Sirioides alter*, is certainly a *Strychnos*. It is possible that the drawing is due to the combination of *Strychnos* and *Myxopyrum* characters from two different plants. I am under obligations to Mr. A. W. Hill of the Royal Gardens, Kew, England, for the determination of No. 518 with *Myxopyrum macrolobum* A. W. Hill. Regarding it he writes: "The *Myxopyrum* is almost certainly *M. macrolobum* A. W. Hill, but our specimens have no fruit and yours have no flowers."

## LOGANIACEAE

## STRYCHNOS Linnaeus

**STRYCHNOS MURICATA** Kostel. Allg. Med.-Pharm. Fl. 3 (1834) 1072 (type!).

*Strychnos ligustrina* Blume Rumphia 1 (1836) 68, t. 25.

*Lignum colubrinum timorense* Rumph. Herb. Amb. 2: 121, t. 38.

The plant that Rumphius figured and described under the name *Lignum colubrinum timorense* was not from Amboina, but from Timor. Willdenow, Sp. Pl. 1<sup>2</sup> (1797) 1052, erroneously reduced it to *Strychnos colubrina* Linn., in which he was followed by several authors. It is the whole basis of *Strychnos muricata* Kostel., which, in publication, antedates *Strychnos ligustrina* Blume; the two species are certainly identical. In spite of the fact that some of the fruits were drawn by Rumphius's artist as somewhat muricate, there is no doubt whatever as to the identity of his plant with *Strychnos ligustrina* Blume=*S. muricata* Kostel. Some authors have erroneously cited t. 37 as representing *Lignum colubrinum timorense*, but this figure represents *Vidara litorea* Rumph.=*Ximenia americana* Linn.

The form very briefly described by Rumphius as *Upas alterum*, Herb. Amb. 2: 264, under *Arbor toxicaria*=*Antiaria toxicaria* Lesch., is considered by Blume and by Hasskarl to be the same as *Strychnos tieute* Lesch., which may be the correct disposition of it.

**STRYCHNOS BARBATA** A. W. Hill in Kew Bull. (1909) 359.

*Sirioides* Rumph. Herb. Amb. 5: 49?

AMBOINA, Amahoesoe, Robinson Pl. Rumph. Amb. 611, September 18, 1913, on cliffs, altitude about 6 meters; Liang, Robinson Pl. Rumph. Amb. 612, November 29, 1913, in light forests, altitude about 15 meters.

From Rumphius's description *Sirioides* is certainly a species of *Strychnos*, in all probability the form represented by the

specimens here assigned to it. *Sirioides* has not previously been definitely placed, Hasskarl, Neue Schlüssel (1866) 94, merely indicating that it pertains to the *Piperaceae*, manifestly an entirely erroneous identification. *Sirioides alter*, described by Rumphius in the same chapter and figured, *t.* 29, *f.* 1, seems to be *Myxopyrum*, although the drawing may be a combination of *Myxopyrum* and *Strychnos* characters (see p. 422, under *Myxopyrum*). I am under obligations to Mr. A. W. Hill, of the Royal Gardens, Kew, for the identification of the above specimens with *Strychnos barbata* A. W. Hill. The species was previously known only from New Guinea. Mr. Hill writes that the specific determination of No. 612 is not certain, as it is in fruit, while the venation of the leaves is not quite the same as in the other number cited here, which is in flower.

#### FAGRAEA Thunberg

**FAGRAEA AMBOINENSIS** Blume Mus. Bot. 1 (1850) 166.

*Fagraea littoralis* Blume var. *amboinensis* Blume Rumphia 2 (1836) 28.

*Funis toaccae* Rumph. Herb. Amb. 5: 481, *t.* 179.

AMBOINA, Mahiya and Way tommo, *Robinson Pl. Rumph. Amb.* 519, August, 1913, on limestone rocks and on trees, altitude 25 to 300 meters; Hitoe lama, *Pl. Rumph. Amb.* 244, November, 1913, along roadsides in light forests, altitude about 50 meters, locally known as *tonki utan*.

*Funis toaccae* Rumph. is well figured, but rather poorly described, perhaps erroneously described as to the seeds, the seed characters assigned perhaps pertaining to some apocynaceous plant. The description otherwise and the figure conform very closely to the plants here identified as *Fagraea amboinensis* Blume. Blume himself discusses *Funis toaccae* Rumph. in the original description of *Fagraea littoralis* Blume var. *amboinensis* Blume. As to the status of *Fagraea amboinensis* Blume as a species distinct from other described and allied forms of the same genus, I can express no opinion, other than that I do not consider it the same as the Javan *Fagraea littoralis* Blume.

#### GENTIANACEAE

##### LIMNANTHEMUM Linnaeus

**LIMNANTHEMUM INDICUM** (Linn.) Griseb. Gen. Sp. Gent. (1839) 343.

*Menyanthes indica* Linn. Sp. Pl. (1753) 145.

*Nymphaea indica minor* II *ceramica* Rumph. Herb. Amb. 6: 173, *t.* 72, *f.* 3.

The Rumphian species was originally reduced to *Menyanthes indica* Linn., by Linnaeus in *Stickman Herb. Amb.* (1754) 28.

Amoen. Acad. 4 (1759) 136, and has been cited by various authors under this name, under *Villarsia indica* Vent., a synonym, and under *Limnanthemum indicum* Griseb. It is to be noted that in the description of the plate in Rumphius the figure is listed as representing *Nymphaea indica minor I*, but the description of this is *Nymphaea*; the description of *Nymphaea indica minor II ceramica* is unmistakably *Limnanthemum* and of the plant figured.

## APOCYNACEAE

## NEUBURGIA Blume

NEUBURGIA MUSCULIFORMIS (Lam.) Miq. Fl. Ind. Bat. 2 (1857) 403.

*Cerbera musculiformis* Lam. Encycl. 1 (1783) 62 (type!).

*Banksia musculiformis* Gaertn. Fruct. 1 (1788) 221 (type!).

*Neuburgia tuberculata* Blume Mus. Bot. 1 (1850) 157.

*Fructus musculiformis* Rumph. Herb. Amb. 2: 184, t. 60.

This species is not represented in our Amboina collections; Rumphius's material was from Ceram. *Fructus musculiformis* Rumph. is the whole basis of *Cerbera musculiformis* Lam. and of *Banksia musculiformis* Gaertn., and hence of *Neuburgia musculiformis* Miq. and of *N. tuberculata* Blume. It is not at all clear that *Neuburgia tubiflora* Blume, of New Guinea, is specifically distinct, and Miquel reduces it as a synonym of *N. musculiformis* (Lam.) Miq.

## CARISSA \* Linnaeus

CARISSA CARANDAS Linn. Mant. 1 (1767) 52.

*Mespilus silvestris* Burm. Index Univ. Herb. Amb. (1755) [14] (type!) non [18]?

*Carissa spinarum* Linn. Mant. 2 (1771) 559, saltem quoad syn. Rumph.

*Echites spinosa* Burm. f. Fl. Ind. (1768) 69.

*Capparis carandas* Burm. f. Fl. Ind. (1768) 118, 119, saltem quoad syn. Rumph.

*Oxyacantha javana* Rumph. Herb. Amb. 7: 39, t. 19, f. 3?

*Carandas* Rumph. Herb. Amb. 7: 57, t. 25.

*Carandas* Rumph. is cited in the original descriptions of all of the species listed above, except *Carissa spinarum* Linn. and *Mespilus silvestris* Burm., and is undoubtedly referable to typical *Carissa carandas* Linn. It has been almost universally cited under the Linnean name. *Oxyacantha javana* Rumph. is of doubtful status, but is possibly the same as *Carissa carandas* Linn. It was placed by Linnaeus under *Carissa spinarum* Linn. in the original description of that species, but Linnaeus mani-

\* Retained name, Vienna Code; *Arduina* Mill. (1760) and *Carandas* Adans. (1763) are older.

festly had specimens before him when writing the description. Loureiro, Fl. Cochinch. (1790) 318, places it under *Phoberos chinensis* Lour.; Endlicher placed it under *Damnacanthus*; and Dietrich placed it under *Canthium indicum* Dietr.=*Damnacanthus indicus* Gaertn. It is the whole basis of *Mespilus silvestris* Burm. as published on page 14 of his "Index Universalis," but *Mespilus silvestris* Burm. as published on page 18 of the same work is entirely different and is *Flacourtia indica* (Burm. f.) Merr. Blume reduced *Oxyacantha javana* Rumph. to *Carissa carandas* Linn., but there are certain objections to this reduction in Rumphius's description. I cannot, however, suggest any more likely reduction of it. If correctly placed, Burman's specific name is the oldest valid one, but no change is here made owing to the uncertain status of *Oxyacantha javana* Rumph. *Spina pectinata* Rumph., Herb. Amb. 7: 39, probably also belongs here.

#### CHILOCARPUS Blume

##### CHILOCARPUS sp.

*Funis pulassarius* Rumph. Herb. Amb. 5: 34, t. 21.

AMBOINA, Gelala, Robinson Pl. Rumph. Amb. 484, September 19, 1913, along small streams, altitude about 120 meters.

Rumphius's figure is unmistakably that of a species of *Chilocarpus*; so far as I can determine from the material available for study, it has remained undescribed in modern botanical literature. The Amboina specimen I have referred here presents only immature flowers, and as the Rumphian figure presents no inflorescences, but only a branch with leaves and fruits, I consider it advisable for the present merely to refer *Funis pulassarius* Rumph. to the genus only. Teysmann, quoted by Hasskarl. Neue Schlüssel (1866) 92, considered that *Funis pulassarius* Rumph. represented a species of *Chilocarpus*.

#### LEPINIOPSIS Valetton

**LEPINIOPSIS TERNATENSIS** Valet. in Ann. Jard. Bot. Buitenz. 12 (1895) 352, t. 28.

*Pulassarius arbor* Rumph. Herb. Amb. 3: 90, t. 60.

AMBOINA, Hitoe lama, Robinson Pl. Rumph. Amb. 73, October 8, 1913, in forests, altitude about 200 meters.

The genus *Lepiniopsis* Valetton, a very characteristic one, was originally described from specimens cultivated in the botanic garden at Buitenzorg, Java, originating in Ternate Island. Later, what I took to be the same species was collected in Mindanao and has now been found to be rather widely distributed in the southern and central Philippines; this has still more

recently been described by Elmer as *Lepiniopsis philippinensis* Elm. *Pulassarius* Rumph. is manifestly identical with *Lepiniopsis ternatensis* Valet.; the Rumphian plant, up to the present time, has not been reduced to any modern genus or species.

**PLUMIERA** (*Plumeria*) Linnaeus

**PLUMIERA ACUMINATA** Ait. Hort. Kew. ed. 2, 2 (1811) 70.

*Plumiera acutifolia* Poir. in Lam. Encycl. Suppl. 2 (1812) 667 (type).

*Flos convolutus* Rumph. Herb. Amb. 4: 85, t. 38.

AMBOINA, Robinson Pl. Rumph. Amb. 78, October 27, 1913, on hills behind the town of Amboina, locally known as *kalan susu* and *kambodja*.

*Flos convolutus* was originally reduced by Linnaeus, by error, to *Plumiera alba* Linn., in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 944, but in Sp. Pl. ed. 2 (1762) 307 he placed it, with doubt, under *Plumiera obtusa* Linn., in which he was followed by Lamarck, Loureiro, Burman f., and Willdenow. *Flos convolutus* Rumph. is apparently the whole basis of *Plumeria acutifolia* Poir., which, however, although the commonly used name for the species, is antedated by about one year by *Plumiera acuminata* Aiton.

**ALSTONIA** R. Brown

**ALSTONIA SCHOLARIS** (Linn.) R. Br. in Mem. Wern. Soc. 1 (1809) 75.

*Echites scholaris* Linn. Mant. 1 (1867) 55.

*Lignum scholare* Rumph. Herb. Amb. 2: 246, t. 82.

Not represented in our Amboina collections. *Lignum scholare* Rumph. was originally reduced by Linnaeus, Syst. ed. 10 (1759) 945, to *Tabernaemontana citrifolia* Linn., with which species it has very little in common. Burman f., Fl. Ind. (1768) 69, erroneously reduced it to *Tabernaemontana alternifolia* Linn. It is cited by Linnaeus in the original description of *Echites scholaris* Linn.; it is, at least in part, the basis of this species and hence of *Alstonia scholaris* (Linn.) R. Br. I can see no valid reason for considering that the plant figured by Rumphius is other than the one described, yet various authors, following R. Brown and A. de Candolle, have considered that the description refers to *Alstonia scholaris* R. Br. and the figure to *Alstonia spectabilis* R. Br.

**ALSTONIA SUBSESSILIS** Miq. Ann. Mus. Bot. Lugd. Bat. 4 (1868) 140.

*Cofassus citrina* Rumph. Herb. Amb. 3: 30, t. 15.

AMBOINA, Hitoe messen, Robinson Pl. Rumph. Amb. 77, October 10, 1913, on forested limestone hills, altitude about 150 meters.

Previously no definite determination of *Cofassus citrina* Rumph. has been made, other than Burman's statement that

it belonged in the *Apocynaceae* and Teysmann's opinion, quoted by Hasskarl, *Neue Schlüssel* (1866) 48, that it was doubtfully a representative of the genus *Alstonia*. The species is known only from Amboina. The specimen cited above is apparently identical with "IV-A-55" cultivated in the botanic garden at Buitenzorg, Java, from Amboina, under the unpublished name *Alstonia hoedti* T. & B.

**TABERNAEMONTANA** Plumier

**TABERNAEMONTANA CAPSICOIDES** sp. nov.

*Capsicum silvestre* Rumph. Herb. Amb. 4: 133, t. 67.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb.* 76 (type), August 11, 1913, on cleared hillsides, altitude 25 to 40 meters; Hitoë messen, *Pl. Rumph. Amb.* 75, October 14, 1913, in forests, altitude about 200 meters.

Frutex vel arbor parva, glabra; foliis in paribus valde inaequalibus, oblongis, chartaceis, usque ad 13 cm longis, utrinque subaequaliter angustatis, basi acutis vel leviter acuminatis, apice acuminatis, acuminis obtusis vel breviter apiculatis, nervis tenuibus, utrinque 10 ad 12; cymis terminalibus vel in axillis superioribus, plerumque pedunculatis, dichotomis, ebracteolatis, paucifloris; floribus tenuiter pedicellatis, calycis lobis brevibus, obtusis, intus glandulosis, corollae tubo circiter 14 mm longo; folliculis 2 ad 3 cm longis, oblongis, prominente rostrato-acuminatis, patulis, curvatis, leviter 2-carinatis, seminibus 4 ad 6.

A glabrous shrub or small tree 2 to 7 meters high, the branches and branchlets slender, subterete, pale-gray. Leaves oblong, those of each pair distinctly unequal in size, one one-half to two-thirds longer than the other, chartaceous, oblong, somewhat shining, brownish-olivaceous on the upper surface when dry, paler beneath, 5 to 13 cm long, 1.5 to 4.5 cm wide, subequally narrowed to the acute or somewhat acuminate base and to the distinctly acuminate apex, the acumen blunt or shortly apiculate; lateral nerves slender, spreading, somewhat curved, 10 to 12 on each side of the midrib, the reticulations obscure; petioles slender, about 5 mm long. Cymes terminal and in the upper axils, usually peduncled, dichotomous, few-flowered, slender, ebracteolate, 3 to 4 cm long. Flowers white, their pedicels slender, about 1 cm long. Calyx about 3 mm long, the lobes broadly ovate, obtuse to rounded, 1 to 1.5 mm long; glands small, oblong, 0.5 mm long. Corolla-tube slender, cylindric, about 14 mm long, the lobes oblong, 5 to 6 mm long. Stamens inserted at about the upper two-thirds. Follicles in pairs, spreading, somewhat curved, oblong-cylindric, 2 to 3 cm long, about 7 mm in



diameter, slightly 2-keeled, prominently rostrate-acuminate, the acumen slender, acute, 3-angled. Seeds 4 to 6.

Previously the status of *Capsicum silvestre* Rumph. had not been definitely determined, although Loureiro, Fl. Cochinch. (1790) 117, cites it under *Tabernaemontana bufalina* Lour. Loureiro's species, however, was described from Cochinchina material and is manifestly not the form described and figured by Rumphius. Some authors, following Loureiro's suggestion, have thought that the drawing of the fruits represented another species, *T. bovina* Lour., but this is certainly not the case. I have described the form as a new species with some hesitation, for I have not been able definitely to determine the status of *Tabernaemontana corymbosa* Roxb. This species is described in Roxburgh's Flora Indica, ed. 2, 2 (1832) 25, from specimens originating in the Moluccas. The description is entirely inadequate, as follows:

*T. corymbosa* R. Leaves petioled, oblong. Corymbs terminal, ample, decomposed, all the primary divisions dichotomous. Anthers enclosed. A native of the Moluccas.

As interpreted by other authors, however, A. de Candolle, Hooker f., and King and Gamble, *Tabernaemontana corymbosa* Roxb. has little to do with the Amboina form above described and is typified by specimens collected in Penang, as described by Wallich, Bot. Reg. sub *t.* 1273. It seems probable that two entirely different plants are involved in *Tabernaemontana corymbosa* Roxb., and that the one described by Roxburgh himself, Fl. Ind. ed. 2, 2 (1832) 25, may be the same as *Tabernaemontana capsicoides* Merr. In examining Rumphius's figure of *Capsicum silvestre* it should be borne in mind that the fruits are drawn on a scale very much larger than that of the leaves.

**TABERNAEMONTANA DIVARICATA** (Linn.) R. Br. ex Roem. & Schultes Syst. 4 (1819) 427.

*Nerium divaricatum* Linn. Sp. Pl. (1753) 209.

*Nyctanthes acuminata* Burm. f. Fl. Ind. (1768) 5.

*Nerium coronarium* Jacq. Coll. 1 (1786) 138.

*Tabernaemontana coronaria* Willd. Enum. Hort. Berol. (1809) 275.

*Flos manilhanus* Rumph. Herb. Amb. 4: 87, *t.* 39.

This widely cultivated shrub is not represented in our Amboina collections. The form figured is the one with double flowers and was introduced into Amboina during Rumphius's time. It is cited by various authors under one or another of the synonyms listed above: by Burman f. in the original description of *Nyctanthes acuminata*; by Lamarck under *Nerium coro-*

*narium* Jacq.; by Roemer and Schultes under *Tabernaemontana divaricata* R. Br., its proper name; and by Willdenow, A. de Candolle, and Miquel under *Tabernaemontana coronaria* Willd. Rumphius surmised that the species was introduced into the Moluccas from Manila, whence his specific name; the species is not a native of the Philippines, but is occasionally found in cultivation here.

#### ALYXIA \* Banks

ALYXIA LAURINA Gaudich. Bot. Freyc. Voy. (1826) 451, t. 62.

*Pulassarium* Rumph. Herb. Amb. 5: 32, t. 20.

AMBOINA, Salahoetoe, *Robinson Pl. Rumph. Amb.* 74, November 27, 1913, in forests, altitude about 850 meters.

There is little doubt that *Pulassarium* Rumph. is the same as *Alyxia laurina* Gaudich., the type of which was from Rawak Island in the Moluccas. I am not in a position to express any opinion as to the relationships of *Alyxia laurina* Gaudich. and *Alyxia stellata* Roem., as I have seen no material representing the latter species, and Forster's original description is entirely inadequate. Roxburgh, *Fl. Ind.* ed. 2, 1 (1832) 699, referred *Pulassarium verum* Rumph. to *Alyxia stellata*, citing *Gynopogon stellatum* Forst. as a possible synonym, and gave an ample description from specimens grown in the botanic garden at Calcutta that originated in Amboina. Gaudichaud, Bot. Freyc. Voy. (1826) 451, thought that it was the same as his *Alyxia laurina*. A. de Candolle, *Prodr.* 8 (1844) 347, excludes the Rumphian synonym under *Alyxia laurina* Gaudich. and places it as a possible synonym of *Alyxia stellata* Roem. and Schultes.

*Pulassarium spurium* Rumph., described in the same chapter with *Pulassarium verum*, Herb. Amb. 5: 33, is indeterminable from the data now available. It is probably a representative of the *Apocynaceae*, but not an *Alyxia*.

#### RAUWOLFIA Plumier

RAUWOLFIA SERPENTINA (Linn.) Hook. f. *Fl. Brit. Ind.* 3 (1882) 632.

*Ophioxylon serpentinum* Linn. Sp. Pl. (1753) 1043.

*Radix mustelae* I *alba* Rumph. Herb. Amb. 7: 29, t. 16.

*Radix mustelae* II *rubra* Rumph. Herb. Amb. 7: 30.

This species is not represented in our Amboina collections. According to Rumphius it was introduced into Amboina from Java; it may no longer occur in the island. *Radix mustelae* Rumph. was originally reduced by Linnaeus to *Ophioxylon serpentinum* Linn., in *Amoen. Acad.* 4 (1759) 136, *Syst.* ed. 10

\* Retained name, Vienna Code; *Gynopogon* Forst. (1776) is older.

(1759) 1303, which is certainly correct, at least for the form figured and described as *Radix mustelae I alba*. Linnaeus has been followed by most authors in this reduction, but among his contemporaries, Burman f., Fl. Ind. (1768) 42, erroneously placed it under *Ophiorrhiza mungos* Linn. Hasskarl, Neue Schlüssel (1866) 188, refers *I alba* to *Ophioxylon serpentinum* Linn., to *O. album* Gaertn., a synonym, and, with doubt, to *O. majus* Hassk., apparently also a synonym; and refers *II rubra* to *Ophioxylon trifoliatum* Gaertn. Rumphius's description of *II rubra* agrees with the characters of Gaertner's species, but *Ophioxylon trifoliatum* Gaertn. is generally considered to be a synonym of *O. serpentinum* Linn.=*Rauwolfia serpentina* (Linn.) Hook. f.

#### OCHROSIA Jussieu

OCHROSIA OPPOSITIFOLIA (Lam.) K. Schum. in Engl. & Prantl Nat. Pflanzenfam. 4<sup>2</sup> (1895) 156.

*Cerbera oppositifolia* Lam. Encycl. 1 (1783) 62 (type!).

*Calpicarpum ? lamarckii* Don Gen. Syst. 4 (1838) 100 (type!).

*Ochrosia salubris* Blume Mus. Bot. 1 (1850) 158.

*Cerbera salutaris* Blume Bijdr. (1826) 1033, non Lour.

*Bleekeria salubris* Hassk. Retzia 1 (1855) 41.

*Lactaria salubris* Rafin. Sylva Tellur. (1838) 162 (type!); Hassk. in Nederl. Kruidk. Arch. 4 (1859) 9.

*Lactaria salubris* Rumph. Herb. Amb. 2: 255, t. 84.

This species is not represented in our Amboina collections. Most of the above synonyms are typified by the Rumphian figure and description; *Cerbera oppositifolia* Lam., *Calpicarpum lamarckii* Don, *Cerbera salutaris* Blume (?), *Lactaria salubris* Rafin., and *Bleekeria salubris* Hassk. wholly so. The description of *Ochrosia salubris* Blume was based primarily on Amboina specimens with the addition of a reference to the Rumphian figure and description. Loureiro, Fl. Cochinch. (1790) 136, cites *Lactaria salubris* Rumph. as a synonym of *Cerbera salutaris* Lour., but the status of Loureiro's species is very uncertain; from the description it cannot possibly be the same as *Scaevola frutescens* (Mill.) Krause, to which it has been reduced. *Ochrosia elliptica* Labill. may be identical with *Ochrosia oppositifolia* (Lam.) K. Schum., but I consider that *O. borbonica* Gmel. represents an entirely different species. Material from the southern Philippines and from the Marianne Islands, agrees very closely with Rumphius's figure and description, and I think certainly represents *Lactaria salubris* Rumph.=*Ochrosia oppositifolia* (Lam.) K. Schum.\*

\* See Valetton in Ann. Jard. Bot. Buitenz. 12 (1895) 226.

## CERBERA Linnaeus

**CERBERA MANGHAS** Linn. Sp. Pl. (1753) 208.

*Cerbera odollam* Gaertn. Fruct. 2 (1791) 193.

*Cerbera lactaria* Ham. in DC. Prodr. 8 (1844) 353.

*Tanghinia lactaria* Don in Sweet Hort. Brit. ed. 3 (1839) 461.

*Arbor lactaria* Rumph. Herb. Amb. 2: 243, t. 81.

*Arbor lactaria terrestris* Rumph. Herb. Amb. 2: 245.

AMBOINA, *Robinson Pl. Rumph. Amb. 72*, along the seashore near the town of Amboina, August 8, 1913; *Gelala, Pl. Rumph. Amb. 71*, September 26, 1913, on hills near the seashore, altitude about 6 meters, locally known as *manga berabu*.

*Arbor lactaria* and *Arbor lactaria terrestris* certainly represent but a single species, and that is *Cerbera manghas* Linn., as actually described by Linnaeus from Osbeck's Javan specimen. *Arbor lactaria* Rumph. was originally reduced by Linnaeus to *Cerbera manghas* Linn., in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 122, in which he was followed by many early authors. Valetton, Ann. Jard. Bot. Buitenz. 12 (1895) 245, has proposed to keep *Cerbera odollam* Gaertn. (*C. manghas* Linn.) and *Cerbera lactaria* Ham. distinct, but after a careful consideration of the descriptions and of a large series of specimens I am now of the opinion that but a single species is represented. I deliberately reinstate the Linnean name, *Cerbera manghas* Linn., as this is manifestly the species amply described by him in the original description of the species from Osbeck's specimens. Some of the references added by him include *Tabernaemontana dichotoma* R. Br.\*

## PARAMERIA Bentham

**PARAMERIA BARBATA** (Blume) K. Schum. in Engl. & Prantl Nat. Pflanzenfam. 4<sup>2</sup> (1895) 162.

*Parsonsia barbata* Blume Bijdr. (1826) 1042.

*Ecdysanthera barbata* Miq. Fl. Ind. Bat. 2 (1857) 451.

*Cortex consolidans* Rumph. Herb. Amb. 5: 30, t. 19.

This species is not represented in our Amboina collections. No previous reduction of *Cortex consolidans* Rumph. has been suggested other than that it belongs in the *Apocynaceae*. The figure, which is apparently an excellent one, and the description agree closely with the characters of *Parameria glandulifera* (Wall.) Benth., of *P. philippinensis* Radlk., and of *P. vulneraria* Radlk., all of which are apparently forms of a single species. Blume's specific name, being the oldest, is here retained.

\*See Trimen Fl. Ceyl. 2 (1895) 128, 132.

## ICHNOCARPUS \* R. Brown

## ICHNOCARPUS sp.?

*Funis papius parvifolius* Rumph. Herb. Amb. 5: 15, t. 11.

This has been reduced with *Funis papius latifolius* Rumph. to *Cynanchum mauritianum* Lam., to *Periploca mauritianum* Poir., and to *Streptocaulon mauritianum* Don, following Lamarck's original doubtful reference of it to the first. It manifestly represents a species distinct from *Funis papius latifolius* and is perhaps a species of *Ichnocarpus*. The form described as *Funis papius rugosior* Rumph. in this chapter is quite undeterminable from Rumphius's description. Hasskarl, Neue Schlüssel (1866) 90, has suggested that it may be a species of *Melodinus*.

## NERIUM Linnaeus

*NERIUM INDICUM* Mill. Gard. Dict. ed. 8 (1768) no. 2.

*Nerium odorum* Soland. in Ait. Hort. Kew. 1 (1789) 297.

*Oleander sinicus* Rumph. Herb. Amb. 7: 15, t. 9, f. 1.

This commonly cultivated plant is not represented in our Amboina collections. *Oleander sinicus* Rumph. was reduced by Loureiro, Fl. Cochinch. (1790) 115, to *Nerium oleander* Linn. However, it appears to be *Nerium indicum* Mill., rather than *N. oleander* Linn., and is here so placed. The form described as *l. minor*, Rumph. l. c. 16, is of doubtful status. It may be a form of this species, or it may be an entirely different plant. The description is too short to warrant a guess at its true identity.

## WRIGHTIA R. Brown

## WRIGHTIA sp.?

*Andawas s. Dawas* Rumph. Herb. Amb. 2: 89.

*Andawas* is briefly described in the chapter with *Cassia fistula silvestris*=*Cassia javanica* Linn., and Hamilton and Miquel both thought that it might be a species of *Cassia*. The description of the seed characters, however, is unmistakably that of an apocynaceous plant. Teysmann, cited by Hasskarl, Neue Schlüssel (1866) 30, considers that it represents *Wrightia pubescens* R. Br.; this is possibly the correct disposition of it. Rumphius's material was from Bali Island, where it is known as *andawas* or *dawas*, so that field work in Bali should eventually yield material and data that will enable some botanist to determine the status of the plant intended by the description.

\* Retained name, Vienna Code; *Quirivelia* Poir. (1804) is older.

## VALLARIS Burman f.

VALLARIS GLABRA (Linn.) O. Kuntze Rev. Gen. Pl. (1891) 417.

*Pergularia glabra* Linn. Mant. 1 (1767) 53.*Vallaris pergulana* Burm. f. Fl. Ind. (1768) 51.*Emericia pergularia* Roem. & Schultes Syst. 4 (1819) 401.*Echites hircosa* Roxb. Hort. Beng. (1814) 85, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 18.*Vallaris ovalis* Miq. Fl. Ind. Bat. 2 (1857) 427.*Flos pergulanus* Rumph. Herb. Amb. 5: 51, t. 29, f. 2.

This species is not represented in our Amboina collections. According to Rumphius the plant was not a native of Amboina, but was introduced from Java. *Flos pergulanus* Rumph. has been cited under all the synonyms given above, including the original publications of both *Pergularia glabra* Linn. and *Vallaris pergulana* Burm. f. It commonly appears in botanical literature as *Vallaria pergulana* Burm. f., but the oldest name is here adopted. The species is of special interest in that it is the type of the genus *Vallaris*.

## APOCYNACEAE indet.

*Funis cratium* Rumph. Herb. Amb. 5: 16, t. 12.

This figure is sufficiently characteristic, so that the species should be readily recognized when once collected in Amboina. It is apparently a scandent species of *Apocynaceae* and much resembles *Urceola*. *Funis cratium litorea* Rumph., Herb. Amb. 5: 17, may belong in the same group, but the description is too short and imperfect to warrant more than a guess at its position. It may belong in either the *Asclepiadaceae* or the *Apocynaceae*.

## ASCLEPIADACEAE

## FINLAYSONIA Wallich

FINLAYSONIA OBOVATA Wall. Pl. As. Rar. 2 (1831) 48, t. 162.

*Olus crepitans mas* Rumph. Herb. Amb. 5: 480, t. 178, f. 2.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 89*, July, September, and October, 1913, climbing over trees in mangrove swamps, locally known as *kapok kapok*.

The description and figure agree perfectly with Wallich's species, which is found in mangrove swamps from India to the Malay Peninsula, the Philippines, Java, Celebes, and Amboina. No previous reduction of *Olus crepitans mas* has been suggested.

## CALOTROPIS R. Brown

CALOTROPIS GIGANTEA (Linn.) Dryand. in Ait. Hort. Kew. ed. 2, 2 (1811) 78.

*Asclepias gigantea* Linn. Sp. Pl. (1753) 214.

*Madorius* Rumph. Herb. Amb. 7: 24, t. 14, f. 1.

This characteristic species, fairly well figured by Rumphius, is not represented in our Amboina collections. *Madorius* Rumph. was originally reduced to *Asclepias gigantea* Linn. by Linnaeus, in Amoen. Acad. 4 (1759) 136, which as *Calotropis gigantea* Dry. is manifestly the correct disposition of it. It has been very generally cited in botanical literature under *Calotropis gigantea* Dry. The form described by Rumphius in the same chapter as *Madorius* II albifloris is probably merely a variant of *Calotropis gigantea* Dry.

#### CYNANCHUM Linnaeus

CYNANCHUM OVALIFOLIUM Wight Contrib. (1834) 57.

*Sussuela esculenta* II femina Rumph. Herb. Amb. 5: 467, t. 173, f. 2.

AMBOINA, Hatiwe and Liang, *Robinson Pl. Rumph. Amb. 86*, September and November, 1913, in thickets, altitude 15 to 100 meters, locally known as *sayor susu laki laki*.

The specimen agrees perfectly with Rumphius's figure and description and certainly represents *Sussuela esculenta* mas. I am unable from the published descriptions alone to distinguish this Amboina specimen from *Cynanchum ovalifolium* Wight. If it does not represent Wight's species, then it represents a very closely allied one. The only previously suggested reduction of Rumphius's species was Hasskarl's doubtful reference of it to *Secamone lineata* Blume, where manifestly it does not belong.

#### CYNANCHUM sp.?

*Sussuela esculenta* I mas Rumph. Herb. Amb. 5: 467, t. 173, f. 1.

AMBOINA, Hoetoemoeri road, *Robinson Pl. Rumph. Amb. 85*, September 30, 1913, climbing over trees, altitude about 40 meters.

The specimen probably represents the form that Rumphius described, but this is uncertain, and its further identification is impossible at this time as the material presents only leaves and mature follicles. *Sussuela esculenta* mas Rumph. is certainly no *Dischidia*, where it was doubtfully placed by Hasskarl. A possible generic identification of it is *Telosma*.

#### GYMNEMA R. Brown

GYMNEMA SYRINGAEFOLIUM (Decne.) Boerl. Handl. Kenn. Fl. Nederl. Ind. 2<sup>2</sup> (1899) 437.

*Bidara syringaeolia* Decne. in DC. Prodr. 8 (1844) 623.

*Marsdenia syringaeolia* Decne. in Ann. Sci. Nat. II 9 (1838) 275, t. 10, f. G.

*Olus crudum minus* Rumph. Herb. Amb. 5: 75, t. 40, f. 2?

*Gymnema syringaefolium* Boerl. is probably the correct disposition of *Olus crudum minus* Rumph. The first reduction was that made by Murray, Syst. (1774) 213, who cited the Rumphian name as a synonym of *Apocynum reticulatum* Linn., where it certainly does not belong, although following Murray it has been so listed by Loureiro, Willdenow, Poiret, Roemer and Schultes, Henschel, Don, Dietrich, and Pritzel. Lamarck, Encycl. 1 (1783) 214, placed it under *Apocynum indicum* Lam., a synonym of *A. reticulatum* Linn. Wight and Arnott and Dietrich placed it with doubt under *Gymnema tingens* W. & A.; and likewise Decaisne and Miquel, with doubt, placed it under the synonym *Bidara tingens* Decne.

#### GYMNEMA sp.

*Olus crudum majus* Rumph. Herb. Amb. 5: 76, t. 40, f. 1.

The figure represents a species apparently very similar to *Olus crudum minus* Rumph., but its status cannot be determined without material from Amboina representing it. Wight, Don, Decaisne, and Miquel placed it with doubt under *Marsdenia angustifolia* Wight, and Dietrich placed it under the synonym *Pergularia angustifolia* Dietr. The species described and figured by Rumphius is probably a *Gymnema*; it certainly is not *Marsdenia angustifolia* Wight.

#### TYLOPHORA R. Brown

##### TYLOPHORA sp.?

*Olus crepitans l mas* Rumph. Herb. Amb. 5: 469, t. 174, f. 1.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 92, August and September, 1913, climbing over trees at low altitudes.

I am not certain that the specimen is a *Tylophora*, although the specimen cited evidently represents *Olus crepitans mas* of Rumphius. The only previously suggested reduction of it was Hasskarl's doubtful reference of it to *Hoya latifolia* Don, where it certainly does not belong.

#### DISCHIDIA R. Brown

##### DISCHIDIA NUMMULARIA R. Br. Prodr. (1810) 461.

*Nummularia lactea minor l minima* Rumph. Herb. Amb. 5: 472, t. 176, f. 1.

AMBOINA, Way tommo and Kati-kati, *Robinson Pl. Rumph. Amb.* 88. August and October, 1913, on trees in mangrove swamps and on *Melaleuca* at an altitude of about 100 meters.

This reduction was made by R. Brown in the original description of *Dischidia nummularia* R. Br. and is apparently the correct disposition of the Rumphian species. Miquel, however,



Fl. Ind. Bat. 2 (1857) 508, reduced it to *Dischidia gaudichaudii* Decne. Beccari, Malesia 2 (1886) 267, who made a critical study of the Malayan species of *Dischidia* known up to that time, retained it under *Dischidia nummularia* R. Br. and reduced *D. gaudichaudii* Decne. as a variety.

**DISCHIDIA RUMPHII** Miq. Fl. Ind. Bat. 2 (1857) 509 (type!).

*Nummularia lactea minor* || *major* Rumph. Herb. Amb. 5: 473, t. 176, f. 2.

AMBOINA, Batoe merah River and Wakal, *Robinson Pl. Rumph. Amb.* 87, August and November, 1913, on trees at low altitudes.

This reduction is made in the original description of *Dischidia rumphii* Miq. So far as can be determined from Miquel's description, the species was based wholly on Rumphius's description and figure. The dried specimens do not agree especially well with the figure, chiefly on account of the shrinkage and wrinkling of the leaves in drying. Doctor Robinson, who studied the fresh material in connection with Rumphius's description and figure, considered that the specimens certainly represented Rumphius's species.

**DISCHIDIA** sp.

*Olus crepitans* || *femina* Rumph. Herb. Amb. 5: 469, t. 174, f. 2.

AMBOINA, Ayer putri and Hitoe lama, *Robinson Pl. Rumph. Amb.* 93, September and October, 1913, on trees, altitude 5 to 150 meters.

The specimen agrees fairly closely with Rumphius's figure and description, the latter being very brief. The chief differences between the specimen and the figure appear to be due to the shrinking of the leaves in drying. This species of *Dischidia* appears to be undescribed in modern literature.

#### CONCHOPHYLLUM Blume

**CONCHOPHYLLUM IMBRICATUM** Blume Bijdr. (1826) 1061.

*Dischidia imbricata* Steud. Nomencl. ed. 2, 1 (1840) 519.

*Pustula arborum* Rumph. Herb. Amb. 5: 473, t. 175, f. 3.

AMBOINA, Paso and Wakeroe, *Robinson Pl. Rumph. Amb.* 91, October, 1913, on trees in mangrove swamps.

*Pustula arborum* Rumph. was reduced by Blume to *Conchophyllum imbricatum* in the original description of that species, and this is apparently the correct disposition of it. Henschel placed it with doubt under *Dischidia collyris* Wall., and Miquel reduced it with *Conchophyllum imbricatum* Blume to *Collyris major* Vahl, apparently misled by Vahl's erroneous reduction of *Pustula arborum* Rumph. in the original description of his species; *Collyris major* Vahl is a true *Dischidia*=*Dischidia major* (Vahl)

(*Dischidia collyris* Wall.). Beccari, Malesia 2 (1886) 258, gives a detailed description of *Conchophyllum imbricatum* Blume with figures.

HOYA R. Brown

HOYA LUTEA Kostel. Algem. Med.-Pharm. Fl. 3 (1834) 1083 (type!).

*Hoya lutea* Decne. in DC Prodr. 8 (1844) 635 (type!).

*Corona ariadnes lutea* Rumph. Amb. 5: 465.

AMBOINA, Amahoesoe, Robinson Pl. Rumph. Amb. 82, August and November, 1913, on cliffs at low altitudes.

The specimen cited above apparently represents *Corona ariadnes lutea* Rumph. which is the whole basis of both *Hoya lutea* Kostel. and *Hoya lutea* Decne., Decaisne overlooking the fact that Kosteletzky had already published the binomial. The specimen has yellow flowers and differs from *Hoya sussuela* (Roxb.) Merr. (*Corona ariadnes punicea* Rumph.) not only in its leaf characters, but also in its different, very much smaller flowers, which are but about 12 mm in diameter.

HOYA RUMPHII Blume Bijdr. (1826) 1065.

*Acanthostemma rumphii* Blume Rumphia 4 (1848) 29, Mus. Bot. 1 (1849) 58.

*Nummularia lactea major* | *fusca* Rumph. Herb. Amb. 5: 470, t. 175, f. 1.

AMBOINA, Lateri and Hitoe lama, Robinson Pl. Rumph. Amb. 84, 605, August and November, 1913, in forests, altitude 150 to 200 meters, locally known as *buah tali tali*.

Poiret, in Lamarck Encycl. Suppl. 1 (1810) 407, reduced the Rumphian species with doubt to *Apocynum agglomeratum* Poir., which was based on specimens from Santo Domingo, and to which it certainly does not refer. Blume apparently based his description of *Hoya rumphii* on Javan specimens, but in the original description of the species reduced the Rumphian illustration as a synonym, which has been accepted by most subsequent authors. The Amboina specimens may or may not be the same as the Javan form.

HOYA SUSSUELA (Roxb.) comb. nov.

*Asclepias sussuela* Roxb. Hort. Beng. (1814) 20, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 31.

*Hoya corona ariadnes* Blume Rumphia 4 (1848) 31, t. 182, 185.

*Hoya speciosa* Decne. in DC. Prodr. 8 (1844) 634.

*Hoya ariadna* Decne. in DC. Prodr. 8 (1844) 635 (type?).

*Corona ariadnes punicea* Rumph. Herb. Amb. 5: 464, t. 172.

AMBOINA, Amahoesoe and Batoe merah River, Robinson Pl. Rumph. Amb. 90, August and September, 1913, on trees and rocks, sea level to 100 meters altitude, locally known as *bunga plota*.

The type of *Asclepias sussuela* Roxb. was from the Moluccas. While the original description is very short, the species is certainly the same as the one later minutely described and figured by Blume as *Hoya corona ariadnes*. Roxburgh reduces *Corona ariadnes punicea* to his species in the original description of *Asclepias sussuela* Roxb.; his species has been reduced to *Hoya imperialis* Lindl. (1846), which is perhaps another synonym of *Hoya sussuela* (Roxb.) Merr. The type of *Hoya speciosa* Decne. was from Amboina. *Hoya ariadna* Decne. was apparently based wholly on the Rumphian description and figure. Blume, Bijdr. (1826) 1063, originally reduced the Rumphian species to *Hoya coronaria* Blume, a species based on Javan material and distinct from *Hoya sussuela* (Roxb.) Merr. (*H. corona ariadnes* Blume).

HOYA ALBA Kostel. Allgem. Med. Pharm. Fl. 3 (1834) 1084 (type!).

*Nummularia lactea major* II alba Rumph. Herb. Amb. 5: 470.

This species is of entirely doubtful status. It was referred by Henschel to *Hoya diversifolia* Blume, while Hasskarl, Neue Schlüssel (1866) 148, thought that it might be *Cyrtoceras multiflora* Heynh.=*Hoya multiflora* Blume=*Centrostemma multiflorum* Decne. There is no reason, however, for considering it other than a true *Hoya*.

HOYA ELEGANS Kostel. Allgem. Med. Pharm. Fl. 3 (1834) 1084 (type!).

*Nummularia lactea major* III (albo-purpurea) Rumph. Herb. Amb. 5: 471.

AMBOINA, Soja and Hitoë messen, *Robinson Pl. Rumph. Amb.* 83, 604, August and October, 1913, in light forests, altitude 175 to 300 meters, locally known as *bunga nasi*.

Hasskarl, Neue Schlüssel (1866) 148, thought that this Rumphian form might be a synonym of *Hoya macrophylla* Blume, a species originally described from Javan material. *Hoya elegans* Kostel. was based wholly on the Rumphian description, and this name is here retained.

HOYA sp.

*Nummularia lactea minor* Rumph. Herb. Amb. 5: 471 (in expl. pl.)  
t. 175, f. 2.

AMBOINA, Hitoë lama, *Robinson Pl. Rumph. Amb.* 81, November 1, 1913, on trees, altitude about 150 meters.

The specimen agrees fairly closely with the figure, which was placed by Lamarck, *Encycl.* 1 (1783) 214, with doubt under *Apocynum tiliacifolium* Lam., where it certainly does not belong. The species figured is manifestly a *Hoya*, but I cannot locate any description of it in Rumphius, merely the name in the explanation of the plate.

## TELOSMA Coville

(Prageluria N. E. Brown)

**TELOSMA ODORATISSIMA** (Lour.) Coville in Contr. U. S. Nat. Herb. 9 (1905) 384.

*Cynanchum odoratissimum* Lour. Fl. Cochinch. (1790) 166.

*Pergularia odoratissima* Sm. Ic. (1790-93) t. 16.

*Apocynum odoratissimum* Lour. ex Henschel Vita Rumph. (1833) 202.

*Asclepias odoratissima* Roxb. Hort. Beng. (1814) 20, *nomen nudum*, Fl. Ind. ed. 2, 2 (1832) 46.

**Flos siamicus** Rumph. Herb. Amb. 7: 58, t. 26, f. 1.

This widely cultivated species is not represented in our Amboina collections. *Flos siamicus* Rumph. was reduced by Loureiro to *Cynanchum odoratissimum* Lour. in the original description of that species, which, as *Telosma odoratissima* Coville, is certainly the correct disposition of it. It has been cited by various authors under all of the synonyms listed above. The species is generally known as *Pergularia odoratissima* Sm.; but *Pergularia* of Linnaeus is an entirely different African genus, as pointed out independently by Coville and by N. E. Brown, the former proposing the generic name *Telosma* in 1905 for the Indo-Malayan species of *Pergularia*, and the latter the name *Prageluria* in 1907.

## ASCLEPIADACEAE indet.

**Funis papius latifolius** Rumph. Herb. Amb. 5: 14, t. 10.

A woody vine, not represented in our Amboina collections. Lamarck, Encycl. 2 (1786) 236, placed it with doubt under *Cynanchum mauritianum* Lam., which Poiret later referred to *Periploca mauritiana* Poir., in Lam. Encycl. 5 (1804) 188, and Don, to *Streptocaulon mauritianum* Don. It is certainly not this species, whatever it may be.

## CONVOLVULACEAE

## MERREMIA Dennstedt

**MERREMIA UMBELLATA** (Linn.) Hallier f. in Engl. Bot. Jahrb. 16 (1893) 552.

*Convolvulus umbellatus* Linn. Sp. Pl. (1753) 155.

*Convolvulus cymosus* Desr. in Lam. Encycl. 3 (1791) 556.

*Ipomoea cymosa* R. & S. Syst. 4 (1819) 241.

*Ipomoea bifida* Roth Nov. Pl. Sp. (1821) 118.

*Convolvulus bifidus* Vahl Symb. Bot. 3 (1794) 30.

**Convolvulus laevis minor I femina, II mas** Rumph. Herb. Amb. 5: 431, t. 158.

AMBOINA, Hatalai Robinson *Pl. Rumph. Amb.* 404, October 24, 1913, roadsides at an altitude of about 300 meters.

The reduction of *Convolvulus laevis* Rumph. to *Convolvulus cymosus* Desr. was made by Desrouss, in Lamarck's *Encycl.* 3 (1791) 556, but the description was based on an actual specimen collected by Sonnerat. Vahl, *Symb.* 3 (1794) 30, makes the reduction to his *Convolvulus bifidus* in the original description of that species, but as was the case with *Convolvulus cymosus*, the description was based on an actual specimen. There is not the slightest doubt that the figure given by Rumphius represents the common and well-known species, *Merremia umbellata* Hallier f. The Amboina specimen cited above is the form with white flowers, designated by Hallier as *Merremia umbellata* var. *orientalis* Hallier f.; but this varietal name, if the variety be maintained, should probably give place to the designation *cymosa*, this being the oldest name for the oriental form.

**MERREMIA PELTATA** (Linn.) Merr. comb. nov.

*Convolvulus peltatus* Linn. *Sp. Pl.* (1753) 1194 (type!).

*Ipomoea peltata* Choisy *Mém. Soc. Phys. Genève.* 6 (1833) 452 (type!).

*Convolvulus laevis indicus major* (alba) Rumph. *Herb. Amb.* 5: 428, t. 157, f. 1, 2.

AMBOINA, Hoetoemoeri road, Robinson *Pl. Rumph. Amb.* 401, September 30, 1913, climbing on trees at an altitude of about 225 meters; flowers white.

*Convolvulus laevis indicus major* "Rumf. *amb.* 6. p. 428. t. 159" is the whole basis of *Convolvulus peltatus* Linn., and the species must be interpreted solely from the Rumphian figure and description. Two plants are figured on the plate, not clearly separable, and probably both are forms of one species; but figure 2 is indicated by Rumphius as belonging with the description Linnaeus designated as the type of his species. *Merremia nymphaeifolia* (Blume) Hallier f. (*Ipomoea nymphaeifolia* Blume) has been distinguished from the Linnean species by Hallier f. as distinct because of its yellow flowers, the Amboina plant having *white* flowers, both as described by Rumphius and as the field note on the Amboina specimens, cited above, shows. I cannot, however, detect a single other character by which the two species can be distinguished; and I consider it very probable that *Merremia nymphaeifolia* Hallier f. must be reduced to *M. peltata* (Linn.) Merr., as a variety or form\* with yellow flowers. I have for purposes of comparison a very full series of specimens from the Philippines and some material from Java, named by Hallier himself as *Merremia nymphaeifolia*. All of our numerous Philippine specimens have yellow flowers. Figure 1 of

plate 157, which is *supposed* to represent the second species "rubra" of Rumphius, I take to represent the same form as figure 2, that is, typical *Merremia peltata* (Linn.) Merr., but it may prove to be *Merremia nymphaeifolia* (Blume) Hallier f. (see below, under *Ipomoea rumphii* Miq.).

#### OPERCULINA S. Manso

OPERCULINA TURPETHUM (Linn.) S. Manso Enum. Subst. Braz. (1836) 16.

*Convolvulus turpethum* Linn. Sp. Pl. (1753) 155.

*Batatta mammosa* Rumph. Herb. Amb. 5: 370 p. p., et t. 131 p. p.

Nothing corresponding to this plant as described and figured by Rumphius, wholly or in part, appears in our Amboina collections. *Batatta mammosa* Rumph. is apparently a composite species, the flowers and leaves of a convolvulaceous plant being figured with the tubers of a different plant attached. From the figure of the tubers, as given by Rumphius, this part of the drawing is almost certainly referable to *Dioscorea*, not to the *Convolvulaceae*. The figure of the leaves and flowers agrees very closely with the common and widely distributed *Operculina turpethum* S. Manso, and I believe this to be the correct disposition of *Batatta mammosa* Rumph., at least for the most part. The description of the flowers also applies very closely and does not apply so well to any other species of *Convolvulaceae* known to me. The following part of the description is especially significant:

Flores primo sunt oblonga, acuminata, & viridia capita instar Capsici fructus, diuque clausa manent, dein sese aperiunt in albos campaniformes flores uti in *Batatta*, sed majores sunt, ac longiore tubo donati, qui profundo insident ac viridi calici, ante meridiem tantum aperti.

The stems, however, characteristically winged in *Operculina turpethum*, are described as "rotunda, & glabra," the leaves as resembling those of *Ipomoea batatas* Poir., but:

flaccidiora, \* \* \* glabriora, magisque sinuosa, inferius nullos gerunt angulos, sed rotundas auriculas instar foliorum Sirii [*Piper*].

As to the origin of the plant, note:

Naturalis ejus patria sunt Manilhae, & magna inprimis Mindanae, vulgo Magendanao [i. e. Mindanao] dicta, ex qua Pampangenses quidam hanc in Amboinam adduxerunt.

The first reduction of *Batatta mammosa* was suggested by Loureiro, Fl. Cochinch. (1790) 108, who placed it under his *Convolvulus mammosus*. While the specific name is manifestly

taken from Rumphius, the plant actually described was a cultivated specimen known in Cochinchina as *khoai tu*, in all probability a cultural variety of *Ipomoea batatas* Poir. Choisy transferred it to *Ipomoea*, as *I. mammosa* (Lour.) Choisy, in Mém. Soc. Phys. Genève. 6 (1833) 475, and in de Candolle's Prodrômus, 9 (1854) 389, retained it as an *Ipomoea* under his "Species non satis notae." Miquel, Fl. Ind. Bat. 2 (1857) 620, compiled his description from Rumphius and Loureiro and placed it at the end of the genus under the heading "Species denuo examinandae." No previous author has suggested that the plant figured and described by Rumphius was based on material from more than one species, and nobody has previously suggested that it is, for most part, referable to *Operculina turpethum* S. Manso, an explanation that is on the whole fairly satisfactory. Prain \* suggests that the form figured by Rumphius may be the same as *Convolvulus platypeltis* Span., of Timor, which Choisy placed as a doubtful synonym of *Ipomoea campanulata* Linn.; Spanoghe's species is entirely unknown to me, nor do I understand the status of the form interpreted by Hallier f. as *Merremia mammosa* Hallier f. In regard to Rumphius's statement as to the Philippine origin of the plant he figured and described I can merely add that no known Philippine species agrees with the description and figure *in toto*.

#### IPOMOEA Linnaeus

**IPOMOEA BATATAS** (Linn.) Poir. in Lam. Encycl. 6 (1804) 14.

*Convolvulus batatas* Linn. Sp. Pl. (1753) 154.

*Batatas edulis* Choisy Conv. Or. (1834) 53.

**Batatta** Rumph. Herb. Amb. 5: 367, t. 130.

AMBOINA, Hoenoe, Robinson Pl. Rumph. Amb. 402, October 8, 1913, cultivated, altitude about 125 meters, locally known as *batatas*.

The reduction of *Batatta* to *Convolvulus batatas* Linn. was first made by Linnaeus, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 922, Sp. Pl. ed. 2 (1762) 220, and this has been followed by numerous other authors, some under the Linnean name *Convolvulus batatas*, others under the name *Ipomoea batatas* (Linn.) Poir. There is no doubt whatever as to the American origin of this plant, but Rumphius's opinion is well worth quoting in connection with the matter. He states:

Communis opinio est, quam etiam sequor usque ad ulteriorem decisionem, *Batatas* primum per Castilienses ex Americanis regionibus in Manilhas, inde in Moluccas, ac Portugalos in reliquis porro Indiae Orientalis regiones

\* Journ. As. Soc. Beng. 74<sup>2</sup> (1905) Extra Number 307.

fuisse introductas, quod nomen etiam testatur apud omnes fere Orientales populos, qui Batattas colunt.

The names cited by Rumphius, *batattas*, *uby castila*, *ima castila* (that is, Spanish yam), *lutu castila*, *castela*, and *camotes*, are all of American origin or refer to the origin of the plant in the Moluccas through the agency of the Spaniards.

**IPOMOEA REPTANS** (Linn.) Poir. in Lam. Encycl. Suppl. 3 (1813) 460.

*Convolvulus reptans* Linn. Sp. Pl. (1753) 158, p. p. quoad syn. Rheed.

*Ipomoea aquatica* Forsk. Fl. Aegypt. Arab. (1775) 44.

*Olus vagum* Rumph. Herb. Amb. 5: 419, t. 155, f. 1.

This characteristic species is not represented in our Amboina collections, but *Olus vagum* Rumph. is unmistakably identical with *Ipomoea reptans* Poir. (*I. aquatica* Forsk.) as currently interpreted. The reduction was first made by Linnaeus himself, in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132, Sp. Pl. ed. 2 (1762) 225, which is additional evidence in support of the idea that Linnaeus's conception of *Convolvulus reptans* was based on *Ballel*, Rheed. Hort. Malabar. 11: 107, t. 52, rather than on the actual specimen so named in his herbarium. Hallier f., Meded. Rijks Herb. (1910) 21, states that the actual specimen in the Linnean herbarium is *Merremia caespitosa* Hallier f., a species totally different from *Ipomoea reptans* Poir. as currently interpreted.\*

I accept the plate and description of Rheede, cited by Linnaeus, as typifying *Convolvulus reptans* Linn., as this interpretation will avoid the change of the specific name for the plant now called *Merremia caespitosa* Hallier f. Linnaeus, Syst. ed. 10 (1759) 922, erroneously reduces *Olus vagum* to *Convolvulus medium* Linn., with which species it has little in common. Choisy considers *Convolvulus medium* to be *Anisaea medium* (Linn.) Choisy, but Index Kewensis reduces it to *Ipomoea denticulata* Choisy.

**IPOMOEA PES-CAPRAE** (Linn.) Roth Nov. Pl. Sp. (1821) 109.

*Convolvulus pes-caprae* Linn. Sp. Pl. (1753) 159.

*Convolvulus bilobatus* Roxb. Hort. Beng. (1814) 14, Fl. Ind. ed. 2, 1 (1832) 485.

*Convolvulus maritimus* Desr. in Lam. Encycl. 3 (1791) 550.

*Convolvulus marinus major* Rumph. Herb. Amb. 5: 433, t. 159, f. 1.

AMBOINA, Robinson Pl. Rumph. Amb. 400, September 13, 1913, on the beach near the town of Amboina.

\* See Merrill in Philip. Journ. Sci. 7 (1912) Bot. 244, for a discussion of the synonymy involved.



The reduction of *Convolvulus marinus* Rumph. to *Convolvulus pes-caprae* Linn. was first made by Linnaeus, in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 924, Sp. Pl. ed. 2 (1762) 226, which is certainly the correct disposition of it, although it is now placed in *Ipomoea* rather than in *Convolvulus*. The figure, which is good, has very generally been cited by subsequent authors either under the Linnean name or under the various synonyms cited above.

**IPOMOEA GRACILIS** R. Br. Prodr. (1810) 484; House in Ann. N. Y. Acad. Sci. 18 (1908) 248.

*Ipomoea denticulata* Choisy in Mém. Soc. Phys. Genève. 6 (1833) 447.

*Ipomoea littoralis* Blume Bijdr. (1826) 713.

*Convolvulus denticulatus* Desr. in Lam. Encycl. 3 (1791) 540, non *Ipomoea denticulata* R. Br.

*Ipomoea choisyana* W. F. Wight in Contr. U. S. Nat. Herb. 9 (1905) 298.

*Convolvulus riparius* Rumph. Herb. Amb. 5: 435, t. 159, f. 2.

AMBOINA, Paso and Batoe gadjah, *Robinson Pl. Rumph. Amb.* 399, August 5, 1913, in thickets back of the beach and on grassy hillsides, altitude about 200 meters.

No definite reduction has been suggested for *Convolvulus riparius* Rumph. other than that it represents a species of *Ipomoea*. The figure corresponds closely with *Ipomoea gracilis*, but the description as given by Rumphius does not agree so well. It is probable that more than one species was included by Rumphius in his description, as he indicates two forms under the names *minor* and *major*. Again this may be the correct disposition of *Convolvulus marinus minor* Rumph. Herb. Amb. 5: 433, that Hasskarl, Neue Schlüssel (1866) 143, suggests may be the same as *Ipomoea rugosa* Choisy or *Convolvulus flagelliformis* Roxb. Both of these, however, are synonyms of *Ipomoea beladamboe* R. & S., a species known only from India and Ceylon, so that the Rumphian plant has nothing to do with the latter species, whatever else it may be.

**IPOMOEA INDICA** (Burm.) comb. nov.

*Convolvulus indicus* Burm. Index Universalis Herb. Amb. 7 (1755) [6] (type!).

*Ipomoea congesta* R. Br. Prodr. (1810) 485.

*Convolvulus caeruleus* Rumph. Herb. Amb. 5: 432.

The Rumphian species is the whole basis of *Convolvulus indicus* Burm., which is not listed in Index Kewensis. Hasskarl, Neue Schlüssel (1866) 143, reduced it to *Ipomoea nil* (Linn.) Roth. While Roth's species occurs in Amboina, Rumphius's description

conforms much more closely to *Ipomoea congesta* R. Br. than to *I. nil* Roth, and I believe that it is here correctly placed.

**IPOMOEA RUMPHII** Miq. Fl. Ind. Bat. 2 (1857) 605 (type!).

*Convolvulus laevis indicus major II rubra* Rumph. Herb. Amb. 5: 429 (excl. t. 157, f. 1).

*Ipomoea rumphii* Miq. is a species of doubtful status and is based wholly on Rumphius, from whose description it must be interpreted. Our Amboina specimens do not include sufficient material to solve the status of the species. The figure, t. 157, f. 1, supposed to represent *Convolvulus laevis indicus major rubra* of Rumphius, is discussed under *Merremia peltata* (Linn.) Merr. above, as almost certainly representing that species; there are no characters in the two figures by which two species can be distinguished. The description, however, calls for a plant with cordate leaves, usually solitary flowers, the corolla purplish toward the apex, and the tube white within and deep purple at the base. I suggest that the description for the most part applies to *Stictocardia campanulata* (Linn.) Merr. (*S. tiliaefolia* Hallier f.), and that *Ipomoea rumphii* Miq. may thus be a synonym of this species. Additional material from Amboina will be necessary before the matter can be definitely settled, for no *Stictocardia* appears in our collections, although the species is certainly to be expected in Amboina.

**IPOMOEA PELTATA** Choisy var. **NIGRICANS** Hassk. in Abhandl. Naturf. Gesellsch. 19 (1866) 284 (Neue Schlüssel (1866) 142) (type!).

*Convolvulus laevis indicus major III nigra* Rumph. Herb. Amb. 5: 429.

The variety proposed by Hasskarl is based solely on Rumphius, and an exact interpretation of it must wait for a more intensive botanical exploration of Amboina. It may prove to be *Stictocardia campanulata* Merr.

#### QUAMOCLIT Tournefort

**QUAMOCLIT PENNATA** (Desr.) Bojer Hort. Maurit. (1837) 224.

*Ipomoea quamoclit* Linn. Sp. Pl. (1753) 159.

*Convolvulus pennatus* Desr. in Lam. Encycl. 3 (1791) 567.

*Quamoclit vulgaris* Choisy in Mém. Soc. Phys. Genève. 6 (1833) 434.

*Flos cardinalis* Rumph. Herb. Amb. 5: 421, t. 155, f. 2.

AMBOINA, Soeli, Robinson Pl. Rumph. Amb. 403, November 25, 1913, in roadside thickets, altitude about 10 meters.

The Rumphian figure is an excellent one, thus rendering the accurate identification of his *Flos cardinalis* very definite. It was first reduced by Linnaeus to his *Ipomoea quamoclit*, in

Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132, Sp. Pl. ed. 2 (1762) 227, which reduction has been followed by numerous other authors, either under the Linnean name or under the various synonyms cited above. It is to be noted that Rumphius describes both the red- and the white-flowered forms. The species is a native of tropical America, introduced into the East at an early date in colonial history.

## BORAGINACEAE

## CORDIA Linnaeus

**CORDIA SUBCORDATA** Lam. Ill. 1 (1791-97) 421.

*Cordia orientalis* R. Br. Prodr. (1810) 498.

*Cordia campanulata* Roxb. Hort. Beng. (1814) 17 (type!), Fl. Ind. ed. 2, 1 (1832) 590, 593.

*Cordia rumphii* Blume Bijdr. (1826) 843.

*Novella nigra* Rumph. Herb. Amb. 2: 226, t. 75.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 385, October 31, 1913, along the seashore, locally known as *kanawa*.

*Novella nigra* was originally, but erroneously, reduced by Linnaeus to *Cordia sebestena* Linn., in Stickman Herb. Amb. (1754) 10, Amoen. Acad. 4 (1759) 122, Syst. ed. 10 (1759) 936, Sp. Pl. ed. 2 (1762) 274, in which he was followed by Burman f. and by Willdenow. *Cordia sebestena* Linn. is, however, a different species, confined to tropical America. *Cordia subcordata* Lam. was based entirely on a specimen collected by Commerson on Pralin or Praslin Island, but Poiret cites the Rumphian name under this species, as doubtfully representing it, in Lamarck's Encycl. 7 (1806) 41. *Novella nigra* is the whole basis of *Cordia campanulata* Roxb., as definitely published in the Hortus Bengalensis (1814) 17, by citation of Rumphius; and it is also wholly or in part the basis of *Cordia rumphii* Blume Bijdr. (1826) 843. The species is of wide distribution in Malaya and Polynesia, always growing along the seashore.

**CORDIA MYXA** Linn. Sp. Pl. (1753) 190.

*Arbor glutinosa* Rumph. Herb. Amb. 3: 155, t. 97.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb.* 383, November 29, 1913, along roadsides at low altitudes, locally known as *gandal*.

This was originally reduced by Linnaeus to *Cordia myxa* Linn., in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 936, and after examining abundant material from various parts of India, the Philippines, and Malaya and the Amboina specimens, I am inclined to consider this disposition of *Arbor glutinosa* the correct one. The species is

rather variable, and it certainly includes the Philippine form described as *Cordia blancoi* Vidal. Hasskarl, Neue Schlüssel (1866) 61, considers that the species described by Rumphius is *Cordia subpubescens* Spanogh., which de Candolle, Prodr. 9 (1845) 482, retains as a valid species, the description of which does not appear to me to apply to *Arbor glutinosa* Rumph.

#### TOURNEFORTIA Linnaeus

**TOURNEFORTIA ARGENTEA** Linn. f. Suppl. (1781) 133.

*Buglossum lanuginosum* Rumph. Herb. Amb. 4: 119, t. 55. (err. t. 45).

AMBOINA, Latoe halat, *Robinson Pl. Rumph. Amb. 384*, September 22, 1913, along the seashore, locally known as *kol laut*.

This was reduced, with doubt, by Linnaeus to *Tournefortia foetidissima* Linn., in Stickman Herb. Amb. (1754) 17, Amoen. Acad. 4 (1759) 127, but *Tournefortia foetidissima* Linn. is an American species entirely different from *T. argentea* Linn. f. The reduction of the Rumphian name *Buglossum lanuginosum* to *Tournefortia argentea* Linn. f. seems first to have been made by Willdenow, Sp. Pl. 1<sup>2</sup> (1797) 793, which is certainly the correct disposition of it.

### VERBENACEAE

#### CALLICARPA Linnaeus

**CALLICARPA CUSPIDATA** Roxb. Fl. Ind. ed. 2, 1 (1832) 394.

*Mamanira alba* Rumph. Herb. Amb. 4: 124, t. 59.

AMBOINA, Hitoe messen, *Robinson Pl. Rumph. Amb. 299*, November 6, 1913, in forests at an altitude of about 100 meters, "buds lilac but flowers white, fruit deep lilac, not white."

Doctor Robinson notes on the field label that he considers the identification of this specimen with *Mamanira alba* as certain; the only discrepancy between the specimen and the description is that the fruits are deep lilac, not white. Hasskarl, Neue Schlüssel (1866) 84, has suggested that *Mamanira alba* is *Sponia pubigera* Miq. (= *Trema*), but this cannot possibly be the case in view of the ample data given by Rumphius in the description. The inflorescences in Rumphius's figure are very poorly drawn.

Schauer\* has reduced *Callicarpa cuspidata* Roxb., which was very briefly described by Roxburgh from specimens originating in the Moluccas (probably Amboina), to the Indian *Callicarpa lanata* Linn. = *Callicarpa tomentosa* (Linn.) Murr., in which he is certainly in error. Nor is the Australian *Callicarpa pedun-*

\* De Candolle Prodr. 11 (1847) 644.

*culata* R. Br., which Schauer cites as a synonym, properly placed, as it is very distinct from both *Callicarpa tomentosa* (Linn.) Murr. and *C. cuspidata* Roxb. *Callicarpa cuspidata* Roxb. is manifestly allied to *C. longifolia* Lam., but it differs in many characters and is certainly specifically distinct from Lamarck's species.

Possibly referable here also is *Robinson Pl. Rumph. Amb. 300*, from Binting, Amboina, August 13, 1913, but the leaves are less pubescent, less acuminate, and the flowers are described by Doctor Robinson as being pale lilac. Doctor Robinson thought that this might be *Mamanira* Rumph., *Herb. Amb. 4: 123, t. 58*, but it does not agree very well with the figure, which represents a plant with 4- and 5-nerved leaves.

**CALLICARPA CANA** Linn. *Mant. 2 (1771) 198?*

*Mamanira* Rumph. *Herb. Amb. 4: 123, t. 58.*

Hasskarl, *Neue Schlüssel* (1866) 84, thought that this might possibly be *Sponia amboinensis* Planch.=*Trema amboinensis* Blume, while Teysmann, l. c., suggested that it might be a species of *Callicarpa*. I consider that Teysmann is correct in his supposition, as the description is unmistakably that of a *Callicarpa*, while the figure is a fair representation of *Callicarpa* except for the very poorly drawn inflorescences. I am of the opinion that the widely distributed *Callicarpa cana* Linn. was the species intended, but nothing approaching this species is represented in our Amboina collections, although *Rel. Robins. 2465*, from Macassar, Celebes, is unquestionably referable to it. Further field work in Amboina will doubtless clear up any doubt there may exist as to the exact identity of *Mamanira*.

**CALLICARPA** sp.

*Frutex ceramicus* Rumph. *Herb. Amb. 4: 124, t. 60.*

This was described from material originating in Ceram and Banda and is undoubtedly a species of *Callicarpa*. Hasskarl, *Neue Schlüssel* (1866) 84, suggested that it might be *Grewia inaequalis* Blume, but the drawing certainly represents no *Grewia*, while the description seems to conform to *Callicarpa*. Field work is necessary in Ceram and Banda before the position of *Frutex ceramicus* can be definitely settled.

Hasskarl, *Neue Schlüssel* (1866) 84, also suggests that *Perlarium alter silvestris* may be a species of *Callicarpa*, but the description is too incomplete to warrant a definite reference of this to any particular genus.

## TECTONA \* Linnaeus f.

TECTONA GRANDIS Linn. f. Suppl. (1781) 151.

*Tectona theka* Lour. Fl. Cochinch. (1790) 137.

*Jatus s. caju jati* Rumph. Herb. Amb. 3: 34, t. 18.

AMBOINA, Binting, *Robinson Pl. Rumph. Amb.* 298, July 29, 1913, on open hillsides at low altitudes, locally known as *jati*.

The teak tree is too well known to need discussion here. The Rumphian description and figure are unmistakably *Tectona grandis*, and the figure has been very generally cited by various authors under one or the other of the synonyms listed above.

The species is widely distributed in the Indo-Malayan region; in some countries it is very extensively cultivated.

## PREMNA Linnaeus

PREMNA OBTUSIFOLIA R. Br. Prodr. (1810) 512.

*Premna cyclophylla* Miq. Fl. Ind. Bat. 2 (1858) 899?

*Premna laevigata* Miq. Fl. Ind. Bat. 2 (1858) 895?

*Premna integrifolia* auct. plur. non Linn.

*Gumira litorea* (G. *silvestris*) Rumph. Herb. Amb. 3: 209 t. 134.

AMBOINA, *Robinson Pl. Rumph. Amb.* 307, August 8, 1913, along the beach near the town of Amboina, locally known as *gumira laut*, that is, *gumira* of the beach or ocean.

The specimen cited above is unmistakably *Gumira litorea* Rumph., as it agrees perfectly with his description and figure, in its habitat, and in its native name, *gumira laut*. Its proper name in our present system of classification is not so certain, but it appears to me to be identical with *Premna obtusifolia* R. Br., also a coastal shrub or small tree, of northeastern Australia; the two species described by Miquel, cited above as doubtful synonyms; and the widely distributed coastal form in the Indo-Malayan region that has very consistently, but erroneously, been called *Premna integrifolia* Linn. The name "*Folium hircinum*" of Rumphius, another species of *Premna*, has been confused by several authors with *plate* 134. The first reduction of *Gumira laut* was by Linnaeus in the original publication of his *Premna integrifolia*, Mant. 2 (1771) 252, who cites Rumphius as "*Folium hirci* Rumph. amb. 3. p. 28. t. 134," thus originating the confusion between the description of *Folium hircinum* and t. 134 of Rumphius, the figure cited being that of *Gumira laut*; t. 133 pertains to *Folium hircinum*. However, *Premna integrifolia* Linn. is based on *Cornutia corymbosa* Burm. f. Fl. Ind. (1768) 132, t.

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\* Retained name, Vienna Code; *Theka* Adans. (1763) is older.

41, f. 1, which in turn was based wholly on Ceylon material, "Cornutoides Linn. Fl. Zeyl. 195, ubi descr." and "Sambucus zeylanica odorata aromatica Herm. herb. Burm. zeyl. 209." Hermann's specimens, as noted by Trimen, Fl. Ceyl. 3 (1895) 352, are *Premna serratifolia* Linn.; and according to strict priority *Premna corymbosa* (Burm. f.) Rottl. & Willd., in Gesell. Nat. Freunde Neue Schr. 4 (1803) 187, 188, is the correct name for the plant that Linnaeus named *Premna integrifolia*, even though C. B. Clarke and Trimen have retained *Premna corymbosa* Rottl. & Willd. as a species entirely distinct from *Premna integrifolia* Linn. and *P. serratifolia* Linn.; all three are typified by the same material. Roxburgh, Fl. Ind. ed. 2, 3 (1832) 77, placed *Gumira litorea* under his *Premna spinosa*, but *Premna spinosa* Roxb. was described from Indian specimens. C. B. Clarke reduced *Premna spinosa* to *Premna integrifolia* Linn. with which *Gumira litorea* has been confused. Miquel, Fl. Ind. Bat. 2 (1858) 894, repeats the confusion between *Gumira litorea* and *Folium hircinum*, citing as a synonym of *Premna corymbosa* (Burm. f.) Rottl. & Willd. "*Gumira litorea* vel *Folium hirci* Rumph. Herb. Amb. III. p. 289. tab. 134."

**PREMNA NITIDA** K. Sch. Fl. Kaiser Wilhelmsl. (1889) 121.

*Premna subglabra* Merr. in Philip. Journ. Sci. 1 (1906) Suppl. 234?

*Folium hircinum* Rumph. Herb. Amb. 3: 208, t. 133.

AMBOINA, various localities, such as Amahoesoe, Paso, and Soja, from sea level to an altitude of about 375 meters, *Robinson Pl. Rumph. Amb. 308*, August to October, 1913, locally known as *gumira* and *gumira dara*.

The identity of the cited material with *Folium hircinum* is certain, but as is the case with the preceding species, its proper name under our present system of classification is uncertain. It seems to be the same as both the comparatively recently described *Premna nitida* K. Sch., of New Guinea, and *P. subglabra* Merr., a common and widely distributed Philippine species, but it is very probable that it has an older published name, perhaps several. Suggested reductions by various authors have been to *Premna integrifolia* Linn. (see above under *Premna obtusifolia* R. Br.), to *Premna cordifolia* Roxb., to *P. tomentosa* Willd., to *P. foetida* Reinwardt, and to *Gumira foetida* Hassk., with none of which it agrees sufficiently to warrant considering *Folium hircinum* referable to any of them. Whatever else it may be, *Folium hircinum* is certainly very closely allied to *Premna gaudichaudii* Schauer, of the Marianne Islands, and definitely seems to be identical with the New Guinea *Premna nitida* K. Schum.

## VITEX Linnaeus

VITEX MOLUCCANA Blume Bijdr. (1826) 813.

Tittius Rumph. Herb. Amb. 3: 38, t. 20.

AMBOINA, Robinson Pl. Rumph. Amb. 296, August 23, November 26 and 29, 1913, in light woods at Liang, Gelala, and Waë, altitude 15 to 20 meters, locally known as *titti* and *daun titti*.

This very characteristic species is known only from Amboina and Banda, the specimens cited above agreeing perfectly with Rumphius's figure and description and with a series of specimens collected in Amboina by Botter, Heyne, Teysmann 5031, and Binnendyck and with Teysmann 5158 from Banda. Poiret, in Lamarck Encycl. 5 (1804) 163, suggested that t. 20 might be *Clerodendron infortunatum* Linn., but erroneously cites the description of *Tittius litorea*. It has nothing in common with that species. The plate is *Vitex moluccana*, but the description cited is a *Clerodendron*. Blume cites the Rumphian plant in the original description of his *Vitex moluccana*, in which he has been followed by later authors. It seems very probable that the two forms indicated by Rumphius as *Tittius alba* and *Tittius rubra* are merely slight variants of the same species.

VITEX COFASSUS Reinw. ex Blume Bijdr. (1826) 813.

Cofassus Rumph. Herb. Amb. 3: 28, t. 14B.

AMBOINA, Liang, Robinson Pl. Rumph. Amb. 302, November 29, 1913, in open fields at an altitude of about 15 meters, locally known as *gofassa*.

This is unquestionably *Cofassus* of Rumphius for the most part. The description includes at least two forms, and the figure presents a species of *Vitex* with simple and trifoliolate leaves on the same plant. *Cofassus mas*, *C. alba*, and *C. femina* should probably all be referred here, although *C. mas*, described as having simple and trifoliolate leaves may be due to a mixture of material, and as Teysmann suggests, in Hasskarl Neue Schlüssel (1866) 48, the trifoliolate-leaved form may be *Vitex timoriensis* Walp.=*V. littoralis* Dcne.=*V. parviflora* Juss. *Cofassus* is cited by Reinwardt in the original description of *Vitex cofassus*. The material cited above agrees with a series of specimens from Amboina, from Celebes (*Heyne*), and with material from New Guinea collected by Hollrung and by Weinland. It is strongly suspected that *Vitex monophylla* K. Sch., Fl. Kaiser Wilhelmsl. (1889) 121, of New Guinea, will prove to be identical with *Vitex cofassus* Reinw.



VITEX TRIFOLIA Linn. Sp. Pl. (1753) 638.

*Lagondium vulgare* Rumph. Herb. Amb. 4: 48, t. 18.

AMBOINA, Robinson Pl. Rumph. Amb. 304, August 13, 1912, along the beach at Binting, locally known as *lagondi*. The same form is also represented by Rel. Robins. 2449 from Macassar, Celebes, and Rel. Robins. 2493 from Boeton.

The reduction of *Lagondium vulgare* to *Vitex trifolia* Linn. was first made by Linnaeus, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1122, Sp. Pl. ed. 2 (1763) 890, which is certainly the correct disposition of it. It is very widely distributed along the seashore throughout the Indo-Malayan region.

VITEX NEGUNDO Linn. Sp. Pl. (1753) 638.

*Lagondium litoreum* Rumph. Herb. Amb. 4: 50, t. 19.

AMBOINA, Amahoesoe, Robinson Pl. Rumph. Amb. 305, September 18, 1913, along the beach, locally known as *lagondi*.

The specimen, as Doctor Robinson notes, shows every intergradation between what is called *Vitex trifolia* Linn. and *V. negundo* Linn., a character that is also presented by many herbarium specimens sometimes placed under one name, sometimes under the other. It is strongly suspected that the two species, at least as currently interpreted, are really not distinct. The reduction of *Lagondium litoreum* Rumph. to *Vitex negundo* Linn. was made by Linnaeus, in Stickman Herb. Amb. (1754) 15, Amoen. Acad. 4 (1759) 126, Syst. ed. 10 (1759) 1122, which disposition of it has been accepted by practically all authors. Lamarck, Encycl. 2 (1788) 612, placed it under his *Vitex paniculata*, but *Vitex paniculata* Lam. is a synonym of *Vitex negundo* Linn. The "species" has the range of *Vitex trifolia* Linn.

*Lagondium nigrum* Rumph., extensively treated by Rumphius, Herb. Amb. 3: 52, and supposed to grow in Buru Island, is probably purely an imaginary plant. Regarding it, Hasskarl, Neue Schlüssel (1866) 75, states: "fabula, nec arboris descriptio enarratur; arbor ex hac fabula intelligi haud potest."

#### PETRAEOVITEX Oliver

PETRAEOVITEX MULTIFLORA (Sm.) comb. nov.

*Petrea multiflora* Sm. in Rees Cyclop. 27 (1817) no. 2.

*Petraevitex riedelii* Oliver in Hook. Ic. 15 (1883) 16, t. 1420.

*Funis quadrifidus* Rumph. Herb. Amb. 5: 4, t. 3.

This characteristic species is not represented in our Amboina collections. Rumphius's description and figure agree closely

with those of *Petraeovitex riedelii* Oliver, the type of which was from the neighboring island, Buru. I have here adopted what is manifestly the oldest valid specific name for the species. *Petrea multiflora* Sm. was based on a specimen gathered by Christopher Smith on Honimoa Island, one of the Moluccas, in the original description of which *Funis quadrifidus* Rumph. is cited as a synonym. I am indebted to Dr. A. B. Rendle, of the British Museum, who has kindly looked up both the original description and the type specimen of Smith's species and informs me, under date of July 22, 1916, that there is no doubt as to its identity with *Petraeovitex riedelii* Oliver. Smith's species, which has been previously considered as one of doubtful status, was excluded from the *Verbenaceae* by Schauer, in DC. Prodr. 11 (1857) 620, where, however, it manifestly belongs. The only other suggested reductions of *Funis quadrifidus* Rumph. was Teysmann's opinion, quoted by Hasskarl, Neue Schlüssel (1866) 89, that it was an *Illigera* (*Hernandiaceae*) and Hasskarl's own opinion that it was possibly a species of *Vitis*; both of these suggested reductions are manifestly wrong.

#### GMELINA Linnaeus

**GMELINA VILLOSA** Roxb. Hort. Beng. (1814) 46, *nomen nudum*, Fl. Ind. ed. 2, 3 (1832) 86.

*Radix deiparae* Rumph. Herb. Amb. 2: 124, t. 39.

*Radix deiparae spuria* Rumph. Herb. Amb. 2: 125, sed 1: t. 40.

AMBOINA, near Paso, common everywhere, and at Batoe mera, Robinson Pl. Rumph. Amb. 306, July 20, 1913, locally known as *kranjang*, *kelanjan*, and *dawn kranjang*.

This is certainly *Radix deiparae* Rumph. and is equally certainly *Gmelina villosa* Roxb. Roxburgh's description was based on specimens from Penang, but he also cites *Radix deiparae* Rumph. Herb. Amb. 2: 124, t. 39, as representing his species. *Radix deiparae spuria*, which Rumphius thought distinct from his *R. deiparae*, undoubtedly is also referable to *Gmelina villosa* Roxb., although by many authors it has been referred to *Gmelina asiatica* Linn. The former was erroneously reduced by Linnaeus to *Gmelina asiatica* Linn., in Stickman Herb. Amb. (1754) 9, Amoen. Acad. 4 (1759) 121, while the latter also has been very generally referred to the same species. It is to be noted that in the Herbarium Amboinense t. 40 of Volumes I and II have been transposed.

CLERODENDRON Linnaeus

CLERODENDRON SPECIOSISSIMUM Paxt. Mag. Bot. 3 (1837) 217, 271.

*Clerodendron fallax* Lindl. in Bot. Reg. (1844) sub. t. 19.

*Petasites agrestis* Rumph. Herb. Amb. 4: 108, t. 49.

AMBOINA, Paso and near the town of Amboina, *Robinson Pl. Rumph. Amb. 303*, July 20 and 23, 1913, along the banks of streams, locally known as *daun picha piring*.

This was reduced by Linnaeus, Mant. 2 (1771) 423, followed by Murray, Syst. Veg. (1774) 483, to *Clerodendron infortunatum* Linn., which it somewhat resembles; it is, however, quite distinct from the Linnean species. This reduction was followed by Willdenow, Blume, Walpers, Hasskarl [Retzia 1 (1855) 59], Schauer, and Miquel. Loureiro, Fl. Cochinch. (1790) 388, placed it under his *Volkameria petasites*, apparently taking his specific name from Rumphius. However, *Volkameria petasites* Lour., as described, is very different from *Petasites agrestis* Rumph. Hasskarl, Neue Schlüssel (1866) 82, suggests that it may be the same as *Clerodendron viscosum* Vent., which, however, has been considered by all recent authors as a synonym of *Clerodendron infortunatum* Linn.

In adopting the name *Clerodendron speciosissimum* Paxt. I have followed the synonymy as given by Schauer, in DC. Prodr. 11 (1847) 666, but have had no opportunity to examine the original description of either *Clerodendron speciosissimum* Paxt. or *C. fallax* Lindl. The Amboina specimens, however, agree perfectly with Javan material named *C. speciosissimum* Lindl. as well as with material from the Caroline Islands, Samoa, and Cuba (cultivated) named *Clerodendron fallax* Lindl. Neither is given for Java by Koorders, Exkurs. Fl. Java 3 (1912) 137-139, although *Clerodendron fallax* Lindl. was apparently described from Javan specimens; perhaps this form is included in Koorders's work under *Clerodendron paniculatum* Linn.

CLERODENDRON COMMERSONII (Poir.) Spreng. Syst. Veg. 2 (1825) 758.

*Volkameria commersonii* Poir. in Lam. Encycl. 8 (1808) 688.

*Volkameria nereifolia* Roxb. Fl. Ind. ed. 2, 3 (1832) 64.

*Clerodendron neriifolium* Wall. Cat. (1829) no. 1789.

*Clerodendron inerme* auct. plur. p. p.

*Jasminum litoreum* Rumph. Herb. Amb. 5: 86, t. 46.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 297*, July 28, 1913, along tidal streams.

This widely distributed coastal plant is commonly named *Clerodendron inerme* (Linn.) Gaertn., but several authors have

maintained the Malayan-Polynesian form specifically distinct from the typical Indian *Clerodendron inerme* (Linn.) Gaertn. If this distinction be maintained, the Malayan-Polynesian form must be called *Clerodendron commersonii* (Poir.) Spreng., which is the oldest valid name for it. *Jasminum litoreum* was first reduced by Linnaeus to *Volkameria inermis* Linn., in Stickman Herb. Amb. (1754) 19, Amoen. Acad. 4 (1759) 129, Syst. ed. 10 (1759) 1122, and all succeeding authors have followed Linnaeus, citing the Rumphian figure under either *Volkameria inermis* Linn. or *Clerodendron inerme* Gaertn.

**CLERODENDRON RUMPHIANUM** DeVriese & Teysm. in Flora 43 (1860) 622, ex Hassk.; DeVriese in Miq. Ann. Mus. Lugd.-Bat. 3 (1867) 252.

*Petasites amboinensis* Rumph. Herb. Amb. 4: 107, t. 48.

Nothing resembling this plant occurs in our Amboina collections. There can be no doubt whatever that the Rumphian *Petasites amboinensis* represents the same species as the plant described by DeVriese, who reduces the Rumphian name as a synonym. The type material of *Clerodendron rumphianum* DeVr., as described in Miquel's Annales, was from Amboina and Ceram.

#### AVICENNIA Linnaeus

**AVICENNIA OFFICINALIS** Linn. Sp. Pl. (1753) 110.

*Mangium album* Rumph. Herb. Amb. 3: 115, t. 76.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 301, October 29, 1913, in mangrove swamps.

*Mangium album*, as figured, is certainly the typical form of *Avicennia officinalis* Linn., which is found along the seashore throughout the tropics of the Old World. Early authors generally made no attempt to reduce this species; Linnaeus, in Stickman Herb. Amb. (1754) 13, merely indicating that it pertained to the genus *Rhizophora*. Hasskarl, Neue Schlüssel (1866) 57, considers that the description included both *Avicennia officinalis* Linn. and the allied *A. alba* Blume. The species is enormously variable in size, often flowering when less than one meter high, but it is normally a tree, frequently reaching a large size.

#### LABIATAE

##### ROSMARINUS Linnaeus

**ROSMARINUS OFFICINALIS** Linn. Sp. Pl. (1753) 23.

*Rosmarinus verus sinensis* Rumph. Herb. Amb. 6: 26.

This is merely mentioned by Rumphius, under the description of *Crategonum amboinicum* Rumph., but is unquestionably the

true European *Rosmarinus officinalis* Linn., which is cultivated for medicinal purposes in sandy soil near the sea in the Philippines and, probably, in various parts of Malaya. It is very generally known in the Philippines by its Spanish name, *roméro*.

#### LEUCAS Burman

**LEUCAS ZEYLANICA** (Linn.) R. Br. ex Spreng. Syst. 2 (1825) 472 (*ceylanica*).

*Phlomis zeylanica* Linn. Sp. Pl. (1753) 586.

*Herba admirationis* Rumph. Herb. Amb. 6: 39 quoad descr., excl. t. 16, f. 1.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb.* 475, July 20, 1913, in open places at low altitudes.

The description appears to me to apply unmistakably to the widely distributed *Leucas zeylanica* R. Br., but the plant figured is certainly the next species, *Leucas lavandulifolia* Sm. Burman f., Fl. Ind. (1768) 127, originally reduced *Herba admirationis* to *Leonurus indicus* Linn., which is correct as to the plant figured. Murray, Syst. (1774) 450, placed it under *Phlomis zeylanica* Linn., in which he was followed by Willdenow, Persoon, Poiret, Henschel, and Pritzel, while Don and Dietrich cite it under *Leucas zeylanica* R. Br.; Walpers, Repert. 3 (1845) 877, refers it to *Leucas linifolia* Spreng.=*Leucas lavandulifolia* Sm., the correct disposition of the figure, but scarcely of the description.

**LEUCAS LAVANDULIFOLIA** Sm. in Rees Cyclop. 20 (1813) no. 2.

*Leonurus indicus* Linn. Syst. ed. 10 (1759) 1101, Sp. Pl. ed. 2 (1763) 817, non *Leucas indica* R. Br.

*Leucas linifolia* Spreng. Syst. 2 (1825) 743.

*Herba admirationis* Rumph. Herb. Amb. 6: t. 16, f. 1, excl. descr.

This species is not represented in our Amboina collections. The figure of *Herba admirationis* Rumph. unmistakably represents this species, but the description applies to *Leucas zeylanica* (Linn.) R. Br., above.

#### SALVIA Linnaeus

**SALVIA PLEBEIA** R. Br. Prodr. (1810) 501.

*Tschintschau javanense* Rumph. Herb. Amb. 6: 90; 7: t. 21, f. 2.

This reduction of *Tschintschau javanense* is probably correct. The plant described was from China and from Semarang, Java. The Chinese name is given by Rumphius as *tsinsau* and *siënthau*. Hasskarl, Neue Schlüssel (1866) 167, merely placed it in the Labiatae. It is, at least, a *Salvia*, whether or not *Salvia plebeia* R. Br.

## MENTHA Linnaeus

**MENTHA ARVENSIS** Linn. Sp. Pl. (1753) 577.

*Mentha crispa* Rumph. Herb. Amb. 5: 267, t. 93, f. 2.

This species is not represented in our Amboina collections. The form figured and described by Rumphius, however, of which he never saw flowers or fruits, is the common mint introduced into the orient by the early Portuguese and Spanish explorers, and now widely, but not extensively, cultivated by the natives and Europeans in the Philippines (here known as *yerba buena*), and probably in other parts of the Indo-Malayan region. By Burman f., Fl. Ind. (1768) 129, it was erroneously reduced to *Ocimum menthoides* Linn.=*Geniosporum prostratum* Benth.

## POGOSTEMON Desfontaines

**POGOSTEMON CABLIN** (Blanco) Benth. in DC. Prodr. 12 (1848) 156; Merr. in Philip. Journ. Sci. 7 (1912) Bot. 345.

*Mentha cablin* Blanco Fl. Filip. (1837) 473.

*Pogostemon patchouly* Pellet. in Mém Soc. Sci. Orléans 5 (1845) 277 t. 7.

*Pogostemon suavis* Ten. in Giorn. Bot. Ital. 2 (1847) 56.

*Pogostemon patchouli* Hook. Kew Journ. Bot. 1 (1849) 328, t. 11.

*Melissa lotoria* Rumph. Herb. Amb. 5: 292, t. 102, f. 1.

This species is not represented in our Amboina collections. The figure is poor and presents only a leafy branch greatly reduced in size. From the description, however, the plant is unmistakably *Pogostemon cablin* (Blanco) Benth., which is widely cultivated in the Indo-Malayan region. Walpers, Repert. 3 (1845) 516, thought that it might be the same as *Coleus atropurpureus* Benth., while Don reduced it to *Coleus aromaticus* Benth.=*Coleus amboinicus* Lour., perhaps by confusion with the latter species, which is figured on the same plate. It is manifestly no *Coleus*, but is certainly referable to *Pogostemon cablin* Benth.

## DYSOPHYLLA Blume

**DYSOPHYLLA AURICULARIA** (Linn.) Blume Bijdr. (1826) 826.

*Mentha auricularia* Linn. Mant. 1 (1767) 81.

*Mentha foetida* Burm. f. Fl. Ind. (1768) 126.

*Majana foetida* Rumph. Herb. Amb. 6: 41, t. 16, f. 2.

This species is not represented in our Amboina collections. The figure and the description unmistakably represent this well-known species. The reduction was made by Linnaeus in the original publication of *Mentha auricularia* Linn., and also by Burman f. in the original publication of *Mentha foetida* Burm. f. Henschel erroneously referred it to *Cyclostegia strobilifera* Benth.

## COLEUS Loureiro

COLEUS AMBOINICUS Lour. Fl. Cochinch. (1790) 372.

*Plectranthus aromaticus* Roxb. Fl. Ind. ed. 2, 3 (1832) 22, non Hort. Beng. (1814) 45.

*Coleus aromaticus* Benth. in Wall. Pl. As. Rar. 2 (1831) 16.

*Coleus suganda* Blanco Fl. Filip. (1837) 483.

*Marrubium album amboinicum* Rumph. Herb. Amb. 5: 294, t. 102, f. 2.

This species is not represented in our Amboina collections. The plant figured and described by Rumphius is certainly the same species as that described by Loureiro as *Coleus amboinicus*, the type of the genus *Coleus*. Loureiro described the species from specimens cultivated in Cochin-China and quotes the Rumphian figure and description as representing his species, also taking his specific name from this source; the plate, by error, is cited as 72 instead of 102. It was originally reduced by Linnaeus, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, to *Nepeta indica* Linn.=*Anisomeles indica* (Linn.) O. Kuntze (*A. ovata* R. Br.), an entirely wrong disposition of it. Later authors have cited it under *Coleus aromaticus* Benth., a synonym of Loureiro's species. *Plectranthus aromaticus* Roxb., as originally published in Hort. Beng. (1814) 45, by citation of Rumphius Herb. Amb. 5: t. 101, is a synonym of *Coleus scutellaroides* (Linn.) Benth., but as described by Roxburgh, Fl. Ind. ed. 2, 3 (1832) 22, it is a synonym of *Coleus amboinicus* Lour.\*

COLEUS TUBEROSUS (Blume) Benth. Lab. Gen. Sp. (1832) 59.

*Plectranthus tuberosus* Blume Bijdr. (1826) 838.

*Coleus parviflorus* Benth. in DC. Prodr. 12 (1848) 72.

*Glans terrestris costensis* Rumph. Herb. Amb. 5: 372, t. 132, f. 1.

This species is not represented in our Amboina collections, but Rumphius's figure and description apply unmistakably to *Coleus tuberosus*. The reduction seems first to have been made by Don, Gen. Syst. 4 (1838) 685, and the Rumphian figure has been cited under this species, sometimes with doubt, by Walpers, Dietrich, Bentham, and Miquel. Some authors have abandoned the name *Coleus tuberosus* (Blume) Benth. (1832) in favor of *Coleus parviflorus* Benth. (1848), on account of the use of the same specific name for another species by Richard, but *Coleus tuberosus* Richard dates from 1851 and is, of course, invalidated by *Coleus tuberosus* Benth.

\* See Robinson in Philip. Journ. Sci. 7 (1912) Bot. 414, 418.

**COLEUS SCUTELLAROIDES** (Linn.) Benth. in Wall. Pl. As. Rar. 2 (1831) 16.

*Ocimum scutellaroides* Linn. Sp. Pl. ed. 2 (1763) 834 (type!).

*Plectranthus scutellaroides* Roxb. Fl. Ind. ed. 2, 3 (1832) 21.

*Majana* (alba et rubra) Rumph. Herb. Amb. 5: 291, t. 101.

AMBOINA, Robinson Pl. Rumph. Amb. 473, July 18, 1913, in wet places in woods and along roadsides near the town of Amboina, locally known as *mayana*, *mariana*, and *johanna*.

*Majana rubra* Rumph. was originally and erroneously reduced by Linnaeus to *Ocimum frutescens* Linn., in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1105. Recognizing this error, however, Linnaeus, Sp. Pl. ed. 2 (1763) 834, made the Rumphian description and figure the whole basis of *Ocimum scutellaroides* Linn., which in turn is the basis of *Coleus scutellaroides* Benth. Burman f., Fl. Ind. (1768) 129, erroneously referred it to *Ocimum gratissimum* Linn.

**COLEUS BLUMEI** Benth. Lab. Gen. Sp. (1832) 56.

*Majana aurea* Rumph. Herb. Amb. 5: 296, t. 102, f. 3.

The form described and figured is one of the common cultivated types of *Coleus* with variegated leaves, commonly known as *Coleus blumei* Benth. Burman f., Fl. Ind. (1768) 130, placed it under *Ocimum scutellaroides* Linn.=*Coleus scutellaroides* Benth., from which, however, it appears to be sufficiently distinct. Miquel thought that this cultivated form was merely a variety of *Coleus scutellaroides* Benth. and considered it as *Coleus scutellaroides* Benth. var. *blumei* Miq. Fl. Ind. Bat. 2 (1759) 950.

**COLEUS** sp.?

*Marrubium album semisilvestre* Rumph. Herb. Amb. 5: 294.

This form was briefly described by Rumphius, who compared it with *Marrubium album amboinense*=*Coleus amboinicus* Lour. It may represent a species of *Coleus*, as suggested by Hasskarl, but its exact status is indeterminable from data now available.

#### OCIMUM Linnaeus

**OCIMUM BASILICUM** Linn. Sp. Pl. (1753) 597.

*Basilicum indicum hortense* Rumph. Herb. Amb. 5: 263 t. 92, f. 1.

Rumphius's figure is a fairly good representation of *Ocimum basilicum* Linn. The reduction to this species seems first to have been made by Burman f., Fl. Ind. (1768) 129, in which he was followed by Lamarck and by Loureiro. Henschel placed it under *Ocimum sanctum* Linn., while Hasskarl placed it under *Ocimum basilicum* Linn. var. *pilosum* Benth. Hasskarl, Neue



Schlüssel (1866) 118, 119, disposes of the three forms described by Rumphius as follows: *fuscum*=*Ocimum sanctum* Linn.?; *album*=*O. basilicum* Linn. var. *album* Benth. and var. *pilosum* Benth.; *nigrum*=*O. basilicum* Linn. var. *purpurascens* Benth. With no material from Amboina for study, no modifications of these reductions, which may or may not be correct, can be suggested.

*OCIMUM SANCTUM* Linn. Mant. 1 (1767) 85.

*Basilicum agreste* Rumph. Herb. Amb. 5: 265, t. 92, f. 2.

This species is not represented in our Amboina collections. It was originally reduced by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1105, to *Ocimum gratissimum* Linn.; but in the Species Plantarum, ed. 2 (1763) 833, he reduced it to *Ocimum tenuiflorum* Linn., which may not be specifically distinct from *O. sanctum* Linn. The plant figured is apparently a form of the common *Ocimum sanctum* Linn., where it was placed by Don, Dietrich, Walpers, Benth, and Miquel. The figure is a very poor one.

*OCIMUM* sp. aff. *basilicum* Linn.

*Ozimum citratum indicum* Rumph. Herb. Amb. 5: 266, t. 93, f. 1.

This species is not represented in our Amboina collections. It was originally reduced by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1105, to *Ocimum tenuiflorum* Linn.; by Burman f., Fl. Ind. (1768) 129, to *Ocimum minimum* Linn.; by Loureiro, Fl. Cochinch. (1790) 370, it was discussed under *Ocimum africanum* Lour.; and by Hasskarl, Neue Schlüssel (1866) 119, it was thought to be *Ocimum basilicum* Linn., either the var. *anisatum* Benth. or the var. *difforme* Benth. I suspect that Hasskarl is correct and that it is a form of *Ocimum basilicum* Linn.

## SOLANACEAE

### PHYSALIS Linnaeus

*PHYSALIS ANGULATA* Linn. Sp. Pl. (1753) 183.

*Halicacabus indicus* I major s. *albus* Rumph. Herb. Amb. 6: 60.

AMBOINA, near the town of Amboina, Robinson Pl. Rumph. Amb. 282, August 8, 1913, in ditches.

The specimen appears to be typical *Physalis angulata* Linn. and agrees well with Rumphius's description. The reduction of the Rumphian plant is in agreement with Nees, Henschel, Walpers, Hasskarl, and Dunal, as cited by Hasskarl, Neue Schlüssel (1866) 163. The figure, t. 26, f. 1, given by Rumphius

as representing the second form, *minor s. niger*, distinctly resembles this plant.

**PHYSALIS MINIMA** Linn. Sp. Pl. (1753) 183?

*Halicacabus indicus* II *minor s. niger* Rumph. Herb. Amb. 6: 61, t. 26, f. 1.

The description seems to apply to *Physalis minima* Linn., at least as that species is now understood. It was reduced to *Physalis pubescens* Linn., an American species, by Linnaeus, in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 933, which is certainly incorrect. By Loureiro, Fl. Cochinch. (1790) 133, it was placed under *Physalis alkekengi* Linn., but Loureiro's description apparently applies to *Physalis minima* Linn.; at any rate, the Rumphian plant has nothing to do with *Physalis alkekengi* Linn. Authors generally have considered it as representing *Physalis indica* Lam., which is apparently a synonym of *P. minima* Linn.

**CAPSICUM** Linnaeus

**CAPSICUM FRUTESCENS** Linn. Sp. Pl. (1753) 189.

*Capsicum indicum* Rumph. Herb. Amb. 5: 247, t. 88, f. 1-4.

AMBOINA, Way tommo, *Robinson Pl. Rumph. Amb. 283*, August 16, 1913, locally known as *chili* and representing *Capsicum* II *minus rubrum* Rumph. t. 88, f. 2.

Four forms of this common *Capsicum* are figured by Rumphius, which Hasskarl, Neue Schlüssel (1866) 116, 117, refers to various described varieties of this widely distributed and variable species. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, who included all the figures given by Rumphius, but later, Sp. Pl. ed. 2 (1762) 271, definitely excluded fig. 2. Irish, Rept. Mo. Bot. Gard. 9 (1908) 99, places *Capsicum indicum* II *minus rubrum* Rumph. Herb. Amb. 5: 247, t. 88 f. 2, under *Capsicum frutescens* Linn. var. *baccatum* (Linn.) Irish, which is probably its correct disposition, if it be considered worth while to attempt the distinction of varieties in this polymorphous species.

**SOLANUM** Linnaeus

**SOLANUM MELONGENA** Linn. Sp. Pl. (1753) 186.

*Trongum hortense* Rumph. Herb. Amb. 5: 238, t. 85.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb. 288*, July 26, 1913, locally known as *trong*; Way tommo, *Robinson Pl. Rumph. Amb. 287*, August 16, 1913, representing *Trongum hortense album amboinense* Rumph. Herb. Amb. 5: 238.

Several forms of this commonly cultivated plant are described by Rumphius, notably I *fuscum*, the variety with purplish fruits, and II *album*, the variety with pale or nearly white fruits. All are certainly referable to *Solanum melongena* Linn. The reduction was first made by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Sp. Pl. ed. 2 (1762) 266, which has been very generally followed by later authors. Some, however, for example, Murray, Syst. (1774) 188, Lamarck, Willdenow, and others, referred it to *Solanum insanum* Linn., which is apparently merely a form of *Solanum melongena* Linn. Other synonyms to which the Rumphian figure has been referred are *Solanum melongena* Linn. var. *esculentum* Walp. Repert. 3 (1844) 81 and *S. esculentum* Dunal Hist. Solan. (1813) 208, t. 3.

The form described by Rumphius under *Trongum hortense* II *album* as "tamatte," page 238, to which Hasskarl, Neue Schlüssel (1866) 115, refers t. 88, f. A (apparently a typographical error for t. 85, f. A), was thought by Hasskarl to represent *Solanum aethiopicum* Lour. or its variety *violaceum* Dunal. It is probably merely a small-fruited form of *Solanum melongena* Linn.

**SOLANUM TRONGUM** Poir. in Lam. Encycl. 4 (1797) 308 (type!).

*Solanum trongum* Poir. var. *rumphii* Dunal in DC. Prodr. 13<sup>1</sup> (1852) 361 (type!).

*Trongum agreste spinosum* Rumph. Herb. Amb. 5: 240, t. 86, f. 1.

AMBOINA, Binting, Robinson Pl. Rumph. Amb. 285, September 25, 1913, along roadsides at low altitudes, locally known as *trong*.

*Solanum trongum* Poir. was based wholly on the Rumphian reference, and I consider that the specimen cited above represents the plant described and figured by Rumphius. However, I am not prepared to state whether or not the species is a valid one, although it has been very generally recognized as such. It has been referred by some authors to *Solanum indicum* Linn., while Roxburgh referred the Rumphian figure to *Solanum insanum* Linn.

**SOLANUM ALBUM** Lour. Fl. Cochinch. (1790) 129.

*Solanum album* Lour. var. *rumphii* Dunal in DC. Prodr. 13<sup>1</sup> (1852) 361.

*Solanum pressum* Dunal Hist. Solan. (1813) 217 (type!)?

*Trongum agreste album* Rumph. Herb. Amb. 5: 241.

*Trongum agreste rubrum* Rumph. Herb. Amb. 5: 241, t. 86, f. 2?

AMBOINA, Hitoe lama, Robinson Pl. Rumph. Amb. 286, November 1, 1913, in forests on limestone formations, altitude about 150 meters, locally known as *trong baduri*.

The specimen almost certainly represents *Solanum agreste album* Rumph., but *S. agreste rubrum* may be different. I am not prepared to state that it is the actual form described by Loureiro, Fl. Cochinch. (1790) 129, as *Solanum album*, although he cites the Rumphian name as a synonym. It is, at any rate, the whole basis of *Solanum album* Lour. var. *rumphii* Dunal.

*Solanum pressum* Dunal was based wholly on *Trongum agreste rubrum* Rumph. Herb. Amb. 5: 241, t. 86, f. 2, and must be interpreted from the Rumphian figure and description. It may prove to be specifically distinct from the form I have here placed under *Solanum album* Lour., but no botanical material is available to assist in determining this point.

**SOLANUM NIGRUM** Linn. Sp. Pl. (1753) 186.

*Solanum triangulare* Lam. Encycl. 4 (1789) 290.

*Solanum rumphii* Dunal Hist. Sol. (1813) 157 (type).

*Solanum nigrum* Linn. var. *rumphii* Miq. Fl. Ind. Bat. 2 (1857) 636.

*Halicacabus baccifer* Rumph. Herb. Amb. 6: 62, t. 26, f. 2.

This common and widely distributed species is not represented in our Amboina collections. *Halicacabus baccifer* was cited by Lamarck in the original description of *Solanum triangulare*, but is not the actual type. It seems, however, to be the whole basis of *Solanum rumphii* Dunal. The Rumphian figure was first reduced to *Solanum nigrum* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 26, Amoen. Acad. 4 (1759) 134, and this is certainly the correct disposition of it.

**SOLANUM VERBASCIFOLIUM** Linn. Sp. Pl. (1753) 184.

*Adulterina* Rumph. Herb. Amb. 6: 58, t. 25, f. 1.

AMBOINA, Waë, Robinson Pl. Rumph. Amb. 289, November 26, 1913.

The figure cited by Linnaeus, in Stickman Herb. Amb. (1754) 26, quoted by Hasskarl, Neue Schlüssel (1866) 162, is not that of *Adulterina*, but of *Lappago laciniata*; that is, t. 25, f. 2, which is *Urena lobata* Linn. (p. 357) and *Triumfetta bartramia* Linn. (p. 354). The reference by Loureiro, Fl. Cochinch. (1790) 229, under *Lawsonia falcata* Lour. is apparently a pure error, for the plant Loureiro describes is totally different from the one that Rumphius figures. It was reduced by Hamilton in Wight and Arnott, Prodr. (1834) 307, to *Solanum verbascifolium* Linn. and is *S. verbascifolium* Linn. var. *adulterinum* Ham. in Walp. Repert. 3 (1844) 53. The plant figured by Rumphius appears to be typical *Solanum verbascifolium* Linn.

## LYCOPERSICUM Hill

LYCOPERSICUM ESCULENTUM Mill. Gard. Dict. ed. 8 (1768) no. 2.

*Solanum lycopersicum* Linn. Sp. Pl. (1753) 185.

*Pomum amoris* Rumph. Herb. Amb. 5: 416, t. 154, f. 1.

The common tomato, cultivated and wild in most parts of the Malayan region, is not represented in our Amboina collections. The form figured is one of the cultivated types with medium-sized fruits; the form indicated by Rumphius as *II rotundum* is apparently the small-fruited wild form with fruits 1 to 2 cm in diameter; that is, the common wild form of the plant that occurs in the Malayan region. The reduction of *Pomum amoris* to *Solanum lycopersicum* Linn. was first made by Linnaeus, in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132, Sp. Pl. ed. 2 (1762) 265, which, as *Lycopersicum esculentum* Mill., is the correct disposition of it.

## DATURA Linnaeus

DATURA FASTUOSA Linn. Syst. ed. 10 (1759) 932.

*Stramonium indica* III *dutra rubra* Rumph. Herb. Amb. 5: 243, t. 87, f. 2.

No representative of the genus *Datura* occurs in our Amboina collections, but the form figured and described by Rumphius is certainly *Datura fastuosa* Linn. The figure presents a form occasionally found in cultivation in the Malayan region with a double corolla. Both forms figured by Rumphius on plate 87 were erroneously reduced by Linnaeus to *Datura metel* Linn., in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 932, Sp. Pl. ed. 2 (1762) 256, in which he was followed by numerous other authors. Other names involved are *Datura hummatu* Bernh. and *D. fastuosa* var. *rubra* Dunal. Burman f., Fl. Ind. (1768) 53, first made the correct reduction to *Datura fastuosa* Linn.

DATURA FASTUOSA Linn. var. ALBA (Nees) C. B. Clarke in Hook. f. Fl. Brit. Ind. 4 (1883) 243.

*Datura alba* Nees in Trans. Linn. Soc. 17 (1834) 73.

*Datura nigra* Hassk. Cat. Hort. Bogor. (1844) 142 (type!).

*Stramonium indica* Rumph. Herb. Amb. 5: 242, t. 87, f. 1 (incl. *Dutra alba* et *Dutra nigra*).

This was originally reduced with *Stramonium indica* III to *Datura metel* Linn. by Linnaeus, as noted above. It is, however, the common, white-flowered form described by Nees as *Datura alba*, which is apparently merely a variant of the common *Datura*

*fastuosa* Linn. *Dutra nigra* Rumph., on which *Datura nigra* Hassk. was wholly based, is manifestly only a form of the common, white-flowered plant with colored branches.

#### NICOTIANA Linnaeus

NICOTIANA TABACUM Linn. Sp. Pl. (1753) 180.

*Tabacus* Rumph. Herb. Amb. 5: 225.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb.* 284, October 8, 1913, cultivated, locally known as *tabak*.

Loureiro, Fl. Cochinch. (1790) 111, referred this to *Nicotiana fruticosa* Linn., but the commonly cultivated *Nicotiana tabacum* Linn. was undoubtedly the plant described by Rumphius and is so considered by Miquel, Fl. Ind. Bat. 2 (1857) 670.

#### SCROPHULARIACEAE

##### LIMNOPHILA \* R. Brown

LIMNOPHILA AROMATICA (Lam.) comb. nov.

*Ambulia aromatica* Lam. Encycl. 1 (1783) 128.

*Gratiola aromatica* Pers. Syn. 1 (1805) 14.

*Limnophila punctata* Blume Bijdr. (1826) 750.

*Terebinthina* Rumph. Herb. Amb. 6: 150, t. 67, f. 2.

No *Limnophila* occurs in our Amboina collections, yet Rumphius's figure and description are unmistakably the form described by Blume as *Limnophila punctata*, but which manifestly is a synonym of the much older *Ambulia aromatica* Lam. *Ambulia aromatica* Lam. was Henschel's reduction of the Rumphian plant and figure, while Hasskarl, Neue Schlüssel (1866) 177, thought that it might be either *Limnophila punctata* Blume or *L. conferta* Benth.

LIMNOPHILA RUGOSA (Roth) comb. nov.

*Herpestis rugosa* Roth Nov. Pl. Sp. (1821) 290.

*Capraria gratissima* Roxb. Fl. Ind. ed. 2, 3 (1832) 92.

*Stemodia menthastrum* Benth. Scroph. Ind. (1835) 23.

*Limnophila roxburghii* G. Don Gen. Syst. 4 (1838) 543.

*Menthastrum amboinicum* Rumph. Herb. Amb. 6: 151, t. 68, f. 1.

The Rumphian figure is very characteristic and, unquestionably, is referable to the present species. Henschel erred in referring it to *Nepeta malabarica* Linn.=*Anisomeles*. Hasskarl, Neue Schlüssel (1866) 177, considered that it was *Limnophila balsamea* Benth.

\* Retained name, Vienna Code; *Ambulia* Lam. (1783), *Diceros* Lour. (1790), and *Hydropiton* Gaertn. (1805) are older.

## ADENOSMA R. Brown

**ADENOSMA CAPITATUM** Benth. ex Hook. f. *Fl. Brit. Ind.* 4 (1884) 264.

*Stemodia capitata* Benth. in Wall. Cat. (1831) no. 3926, *nomen nudum*,  
Bot. Reg. sub. t. 1470, fide C. B. Clarke.

*Pterostigma capitatum* Benth. *Scroph. Ind.* (1835) 21.

*Erinus bilabiatus* Roxb. *Fl. Ind. ed. 2, 3* (1832) 92.

*Stoechas pilosa* Rumph. *Herb. Amb.* 7: 51, t. 22, f. 1.

This species is not represented in our Amboina collections. The figure and description, however, both refer unmistakably to *Adenosma capitatum* Benth. Hasskarl, *Neue Schlüssel* (1866) 190, referred it, with doubt, to *Acrocephalus capitatus* Benth., which is manifestly wrong. The whole plant is pleasantly aromatic when crushed. Clarke states that *Erinus bilabiatus* Roxb. and *Stemodia capitata* Benth. were published in the same year.

## ILYSANTHES Rafinesque

(*Bonnaya* Reichenbach)

**ILYSANTHES ANTIPODA** (Linn.) comb. nov.

*Ruellia antipoda* Linn. *Sp. Pl.* (1753) 635.

*Ruellia anagallis* Burm. f. *Fl. Ind.* (1768) 135.

*Gratiola veronicaefolia* Retz. *Obs.* 4 (1786) 8.

*Bonnaya veronicaefolia* Spreng. *Syst.* 1 (1825) 41.

*Ilysanthes veronicaefolia* Urban Berich. *Deutsch. Bot. Gesellsch.* 2 (1884) 436.

*Crusta ollae major* Rumph. *Herb. Amb.* 5: 460, t. 170, f. 2.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 261, August 20, 1913, in a sago swamp near sea level.

*Ruellia antipoda* Linn., typified by *Fl. Zeyl.* 235, supplies the oldest specific name for this common, well-known, and widely distributed species. The reduction to *Ruellia antipoda* Linn. was first made by Linnaeus, in *Stickman Herb. Amb.* (1754) 24, in which he was followed by Willdenow, Loureiro, Poiret, and other authors. Burman f., *Fl. Ind.* (1768) 135, referred it to his *Ruellia anagallis*, while various other authors have cited it under one or another of the synonyms mentioned above. The species appears in most recent botanical literature as *Bonnaya veronicaefolia* Spreng.

## CURANGA Jussieu

**CURANGA FEL-TERRAE** (Lour.) comb. nov.

*Picria fel-terrae* Lour. *Fl. Cochinch.* (1790) 393.

*Caranga amara* Vahl *Enum.* 1 (1804) 100.

*Curanga amara* Juss. in *Ann. Mus. Paris* 9 (1807) 319.

*Curania amara* R. & S. *Syst.* 1 (1817) 138.

*Gratiola amara* Roxb. *Hort. Beng.* (1814) 80, *nomen nudum*, *Fl. Ind.* ed. 2, 1 (1832) 135.

*Herpestis amara* Benth. Scroph. Ind. (1835) 30.

*Serratula amara* Rumph. Herb. Amb. 5: 459, t. 170, f. 1.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb.* 263, October 17, 1913, in wet meadows and in cleared places near streams, altitude about 70 meters, locally known as *kakuran mera*.

*Serratula amara* was erroneously reduced by Linnaeus to *Scutellaria indica* Linn., in Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 133, Sp. Pl. ed. 2 (1763) 836, in which he was followed by Burman f., Willdenow, Poiret, Persoon, and Pritzel. Vahl, however, placed it under his *Caranga amara*, Enum. 1 (1804) 100, given by all authors since Jussieu as *Curanga amara* Juss. Various authors have cited the figure under the other synonyms given above. I can see no reason for not accepting Loureiro's specific name, for *Picria fel-terrae* Lour. is manifestly the same as *Curanga amara* Juss., and Loureiro's specific name is at least fourteen years older than that proposed by Vahl. It is also to be noted that the generic names *Picria* and *Caranga* are both older than *Curanga* of Jussieu.

#### LINDERNIA Allioni

(*Vandellia* Linnaeus)

LINDERNIA CRUSTACEA (Linn.) F. Muell. Census (1882) 97.

*Capraria crustacea* Linn. Mant. 1 (1767) 87.

*Vandellia crustacea* Benth. Scroph. Ind. (1835) 35.

*Crusta ollae minor* Rumph. Herb. Amb. 5: 461, t. 170, f. 3.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb.* 262, July 20, 1913, in various habitats, altitude 5 to 15 meters.

In Stickman Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 133, Linnaeus reduced "170 *Crusta ollae*" to his *Ruellia antipoda*, overlooking the fact that two distinct species are described and figured. Of these *Crusta ollae major*, t. 170, f. 2, is *Ruellia antipoda* Linn. = *Ilysanthes antipoda* (Linn.) Merr. (see p. 467); while *Crusta ollae minor*, t. 170, f. 3, is *Capraria crustacea* Linn. = *Lindernia crustacea* (Linn.) F. Muell. Burman f., Fl. Ind. (1768) 134, refers *Crusta ollae minor*, t. 170, f. 3, to *Ruellia antipoda* Linn., but also on the preceding page refers the same figure to *Capraria crustacea* Linn. where it properly belongs. Other names concerned in the reduction of the Rumphian figure are *Gratiola lucida* Willd., *Torenia crustacea* Cham. & Schlecht., and *T. edentula* Griff. The plant figured and described by Rumphius is manifestly the common, well-known, and widely distributed *Lindernia* (*Vandellia*) *crustacea* (Linn.) F. Muell., which appears in most recent botanical literature as *Vandellia crustacea* Benth.



## BIGNONIACEAE

## DOLICHANDRONE Fenzl

**DOLICHANDRONE SPATHACEA** (Linn. f.) K. Schum. Fl. Kaiser Wilhelms Land (1889) 123.

*Bignonia spathacea* Linn. f. Suppl. (1781) 283.

*Dolichandrone rheedii* Seem. in Journ. Bot. 8 (1870) 380.

*Lignum equinum* Rumph. Herb. Amb. 3: 73, t. 46.

AMBOINA, Kati-kati, *Robinson Pl. Rumph.* 86, October 17, 1913, along the seashore.

*Lignum equinum* was originally reduced to *Bignonia spathacea* by the younger Linnaeus in the original description of the species. The first reference is to Rumphius, but the actual type was material collected by Koenig. Loureiro, Fl. Cochinch. (1790) 380, referred it to his *Bignonia longissima*, but *B. longissima* Lour. is an exact synonym of *Dolichandrone spathacea* K. Schum.

## PANDOREA Spach

**PANDOREA** sp.?

*Campana rubra* Rumph. Herb. Amb. 7: 42.

Hasskarl, Neue Schlüssel (1866) 190, has suggested that *Campana rubra* is a bignoniaceous plant and gives a description comprising the essential characters of the plant after Rumphius. I consider that he is correct in his surmise as to the family, and I further suggest *Pandorea* as the possible correct disposition of the Rumphian plant. At any rate, the species described by Rumphius should be critically compared with authentic botanical material of the species described as *Tecoma amboinensis* Blume and *T. dendrophila* Blume, the former from Amboina, the latter from New Guinea, both of which are apparently referable to *Pandorea*.

## PEDALIACEAE

## SESAMUM Linnaeus

**SESAMUM ORIENTALE** Linn. Sp. Pl. (1753) 634.

*Sesamum indicum* Linn. Sp. Pl. (1753) 634.

*Sesamum indicum nigrum* Rumph. Herb. Amb. 5: 204, t. 76, f. 1.

*Sesamum indicum album* Rumph. Herb. Amb. 5: 204.

The common sesame is not represented in our Amboina collections, but it doubtless still occurs in Amboina, as it is a plant of wide distribution in cultivation and in cultivated lands in the Indo-Malayan region. Rumphius's illustration was first reduced to *Sesamum indicum* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 20, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1120, Sp. Pl. ed. 2 (1763) 884. *Sesamum orientale* Linn. has page priority over the more commonly used *Sesamum indicum* Linn.

## GESNERIACEAE

## CYRTANDRA Forster

**CYRTANDRA DECURRENS** DeVriese Pl. Ind. Bat. Or. (1845) 14.

*Macuerus femina* Rumph. Herb. Amb. 6: 132, t. 53, f. 1.

AMBOINA, Halong, Batoe merah, Soja, and Lateri, *Robinson Pl. Rumph. Amb.* 210, September, 1913, along river banks, in thin forests, and on wooded hillsides, altitude 20 to 300 meters.

Hasskarl, *Neue Schlüssel* (1866) 174, thought that this might be *Cyrtandra nemorosa* Blume, a species known only from Java. The Amboina specimens agree perfectly with the Rumphian figure and description and with the description of *Cyrtandra decurrens* DeVriese, which was based on Amboina material. Clarke, DC. Monog. Phan. 5 (1883) 232, cites Amboina material collected by DeVriese, Zippel, Barclay, C. Smith, Dolleschal, and Lahaie; and Doctor Robinson collected it in four different localities, so the species is apparently common in Amboina. The typical form is also known from Buru, with varieties in Penang, Borneo, Celebes, and New Guinea.

## ACANTHACEAE

## HEMIGRAPHIS Nees

**HEMIGRAPHIS ANGUSTIFOLIA** Hallier f. in Nov. Act. Akad. Naturf. 70 (1897) 203, t. 10, f. 3.

*Prunella molucca hortensis angustifolia* Rumph. Herb. Amb. 6: 30, t. 13, f. A, B.

AMBOINA, *Robinson Pl. Rumph. Amb.* 99, August 20, 1913, in a sago swamp near the town of Amboina, locally known as *biana*.

Linnaeus referred "*Prunella molucca* Rumph. amb. 6. p. 30. t. 13. f. B." to *Ruellia repanda* Linn. in the original description of that species, Sp. Pl. ed. 2 (1763) 886, in which he has been followed by all authors, until very recently, some of whom added also fig. 2 of the same plate. The species was based primarily on Javan specimens. Hallier, however, has distinguished the form described and figured by Rumphius as *Hemigraphis angustifolia*, describing the species from a specimen collected by Treub in Amboina and citing the Rumphian name and illustration as given above. This is undoubtedly the correct disposition of it.

**HEMIGRAPHIS PETOLA** Hallier f. Nov. Act. Akad. Naturf. 70 (1897) 206, t. 10, f. 1.

*Prunella molucca hortensis* III lire *petola* Rumph. Herb. Amb. 6: 31.

The reduction follows Hallier's suggestion, his species being

based on specimens from Ceram Island; Rumphius's material was from Ternate. The forms described by Rumphius, l. c., as *Lire papua* and *Lire kitsjil* are probably representatives of *Hemigraphis*, at least of the *Acanthaceae*; but their exact status is indeterminable from data and material now available.

**HEMIGRAPHIS REPTANS** K. Schum. var. **GLAUDESCENS** Hallier f. in Nov. Act. Akad. Naturf. 70 (1897) 207.

*Prunella silvestris alba* Rumph. Herb. Amb. 6: 31, t. 13, f. 2.

AMBOINA, Batoe mera, Robinson Pl. Rumph. Amb. 100, July 20, 1913, in wet soil at low altitudes.

The specimen is apparently referable to the variety described by Hallier, the type of which was from Amboina. It is not so certain that it represents *Prunella silvestris alba* Rumph., but it agrees with the description rather better than with the figure. It was reduced by Burman f., Fl. Ind. (1768) 135, to *Ruellia alternata* Burm. f. (*R. discolor* Nees), a species known only from Java; and by Nees and Miquel it was placed under *Ruellia discolor* Nees=*Hemigraphis alternata* T. And.

**HEMIGRAPHIS** sp.

*Prunella molucca silvestris* II *rubra* Rumph. Herb. Amb. 6: 32, t. 13, f. 3.

This is clearly a species of *Hemigraphis*, but beyond this its exact status is indeterminable at the present time from want of material representing it. Burman f., Fl. Ind. (1768) 135, reduced it to *Ruellia alternata* Burm. f.=*Hemigraphis alternata* T. Andr.; while Nees, in DC. Prodr. 11 (1857) 145, placed it under *Ruellia colorata* Blume=*Hemigraphis colorata* Hallier f.

*Prunella molucca silvestris* III *rotunda* Rumph. Herb. Amb. 6: 32 is certainly a species of *Hemigraphis*, apparently close to the preceding, but its status cannot be definitely determined at present.

**HEMIGRAPHIS** sp.

*Prunella molucca hortensis latifolia* Rumph. Herb. Amb. 6: 30, t. 13, f. 1.

Hasskarl, Neue Schlüssel (1866) 157, thought that this might be a species of *Strobilanthes* or *Lepidagathis*. The figure is unmistakably that of a species of *Hemigraphis*, but the plant is not represented in our Amboina collections and cannot be properly placed within the genus until more extensive collections of Amboina material are available for study.

## RUELLIA Plumier

**RUELLIA REPENS** Linn. Mant. 1 (1767) 89; Burm. f. Fl. Ind. (1768) 135, t. 41, f. 2.

*Dipteracanthus lanceolatus* Nees in Wall. Pl. As. Rar. 3 (1832) 82.

*Justicia moretiana* Burm. f. Fl. Ind. (1768) 10 p. p., quoad syn.

Rumph.

*Moretiana* Rumph. Herb. Amb. 6: 53, t. 23, f. 1.

AMBOINA, Batoe merah, *Robinson Pl. Rumph. Amb. 101*, July 20, 1913, in rocky soil and along ditches at low altitudes; also represented by *Rel. Robins. 2500* from Baoebaue, Boeton, July 13, 1913.

The specimen cited above certainly represents *Moretiana* as described and figured by Rumphius and is likewise *Ruellia repens* Linn., as currently interpreted. C. B. Clarke \* states regarding *Ruellia repens* Linn. Mant. 1 (1767) 89:

The plate of Burmann (Fl. Ind. t. 41, fig. 1) is good, and represents a plant not of the genus *Ruellia*. In the Addit. to Mant. 515 (1771), Linnaeus says his *Ruellia repens* was Burmann, t. 41, fig. 1.

I consider that the figure given by Burman f. is a crude representation of *Ruellia repens* Linn. as currently interpreted; but at any rate it has no bearing on the interpretation of *Ruellia repens* Linn., which was published one year before Burman's work was issued. Burman f., Fl. Ind. (1768) 10, referred *Moretiana* Rumph. to *Justicia moretiana* Burm. f., taking his specific name from Rumphius. This species was based primarily on Burman Thes. Zeyl. 7, t. 3, f. 1, an entirely different plant, which has little in common with *Moretiana* as figured and described by Rumphius.†

## BARLERIA Linnaeus

**BARLERIA PRIONITIS** Linn. Sp. Pl. (1753) 636.

*Barleria hystrix* Linn. Mant. 1 (1767) 89.

*Prionitis hystrix* Miq. Fl. Ind. Bat. 2 (1858) 809.

*Hystrix frutex* Rumph. Herb. Amb. 7: 22, t. 13.

This common and well-known species is not represented in our Amboina collections. The reduction of *Hystrix frutex* Rumph. to *Barleria prionitis* Linn. was first made by Linnaeus, in Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1121, Sp. Pl. ed. 2 (1763) 887. *Barleria hystrix* Linn. is a synonym of *B. prionitis* Linn. and was based primarily on a specimen collected by Royen, with a reference to *Hystrix frutex* Rumph. and one to Plukenet added.

\* Journ. As. Soc. Beng. 74<sup>2</sup> (1907) Extra Number 649.

† See Trimen Fl. Ceyl. 3 (1895) 335.

## LEPIDAGATHIS Willdenow

## LEPIDAGATHIS RUMPHII sp. nov.

*Bungum mas* Rumph. Herb. Amb. 6: 52, t. 22, f. 2.

AMBOINA, Way tommo and near the town of Amboina, *Robinson Pl. Rumph. Amb. 97* (type), July and August, 1913, along river banks and in thickets, altitude 5 to 50 meters.

Erecta vel suberecta, circiter 50 cm alta, ramosa, inflorescentiis exceptis glabra vel subglabra, ramis ramulisque quadrangulatis; foliis longe petiolatis, chartaceis, oblongis ad oblongo-lanceolatis, aequilateralibus, usque ad 7 cm longis, utrinque subaequaliter angustatis acuminatisque, nervis utrinque circiter 5, tenuibus; inflorescentiis terminalibus, spicis numerosis, anguste oblongis, 1.5 ad 2.5 cm longis, aggregatis, bracteis bracteolisque subaequimagnis, oblongo-ovatis, 4 mm longis, breviter mucronato-acuminatis, extus pubescentibus, eglandulosis; calycis 5-partitis, 5 mm longis, pubescentibus.

An erect or suberect, branched, nearly glabrous herb about 50 cm high, the branches and branchlets prominently 4-angled. Leaves opposite, those of each pair subequal in size, oblong to oblong-lanceolate, chartaceous, olivaceous, dull, paler beneath, 4 to 7 cm long, 1.5 to 2.5 cm wide, the upper ones smaller, subequally narrowed to the acuminate base and apex, equilateral, entire, the cystoliths small, numerous on both surfaces; petioles slender, 1.2 to 2.5 cm long. Spikes terminal, numerous, mostly in threes on each ultimate branchlet, cylindric, continuous, 1.5 to 2.5 cm long, about 6 mm in diameter, pale when dry, pubescent, many-flowered, secund. Bracts and bracteoles similar in size and shape, oblong-ovate, apiculate-acuminate, about 4 mm long, uniformly pubescent with rather long pale hairs, the indumentum on the calyx quite similar. Calyx about 5 mm long, the upper segment 2 mm wide, the two lateral ones nearly free, less than one-half as wide as the upper one, the lower segment cleft about one-third. Corolla 5 mm long. Capsule narrowly oblong, narrowed upward, obtuse, about 5 mm long.

This species is manifestly in the group with *Lepidagathis mucronata* Nees, *L. parviflora* Blume, and *L. javanica* Blume, but is apparently distinct from all of these and from the other allied species. It is well characterized by its oblong to oblong-lanceolate, relatively long-petioled leaves; its equal bracts and bracteoles; its short, dense, somewhat crowded spikes; and its small flowers.

The species manifestly represents *Bungum mas* as figured and described by Rumphius, a form that previously has not been

correctly placed, even as to its genus. In the early literature *Bungum mas* was confused with *Justicia purpurea* Linn. and with *Justicia bivalvis* Linn. (see *Peristrophe bivalvis* (Linn.) Merr., page 476). It has also been referred by various authors to *Hypoestes purpurea* R. Br., to *Rostellularia purpurea* R. Br., and to *R. diffusa* Nees, with none of which it has much in common.

#### ACANTHUS Linnaeus

**ACANTHUS EBRACTEATUS** Vahl Symb. 2 (1791) 75, t. 40; 3 (1794) 85.

*Dilivaria ebracteata* Pers. Syn. 2 (1807) 179.

*Aquifolium indicum I mas* Rumph. Herb. Amb. 6: 163, t. 71, f. 1.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 106*, October 29, 1913, in mangrove swamps, flowers white, with a faint tinge of violet.

Both forms of *Aquifolium indicum* Rumph. were reduced by Linnaeus to *Acanthus ilicifolius* Linn., in Stickman Herb. Amb. (1754) 28, Amoen. Acad. 4 (1759) 136, Syst. ed. 10 (1759) 1123, Sp. Pl. ed. 2 (1763) 892, in which he was followed by Burman f. and by Loureiro. However, two species are described and figured; *I mas*, clearly the form characterized by Vahl as *Acanthus ebracteatus*, and *II femina*, equally clearly the form characterized by Wallich as *Acanthus volubilis* (see the following species). The Rumphian figure and description were referred by Vahl, Symb. 3 (1794) 85, to *Acanthus ebracteatus* Vahl, in which he was followed by Willdenow. Poiret, Henschel, Dietrich, Nees, Pritzel, and Miquel cite it under *Dilivaria ebracteata* Pers., but in the more modern literature it is cited under *Acanthus ebracteatus* Vahl.

**ACANTHUS VOLUBILIS** Wall. Pl. As. Rar. 2 (1832) 56, t. 172.

*Dilivaria volubilis* Nees in Wall. Pl. As. Rar. 3 (1833) 98.

*Dilivaria scandens* Nees in DC. Prodr. 11 (1857) 269.

*Aquifolium indicum II femina* Rumph. Herb. Amb. 6: 163, t. 71, f. 2.

AMBOINA, Ayer putri, *Robinson Pl. Rumph. Amb. 107*, July 28, 1913, along tidal streams, subscandent.

As noted above under *Acanthus ebracteatus* Vahl, Linnaeus originally reduced this form to *Acanthus ilicifolius* Linn. Nees and Miquel cite it under *Dilivaria scandens* Nees; which, as *Acanthus volubilis* Wall., is certainly the correct disposition of it.

#### GRAPTOPHYLLUM Nees

**GRAPTOPHYLLUM PICTUM** (Linn.) Griff. Notul. 4 (1854) 139.

*Justicia picta* Linn. Sp. Pl. ed. 2 (1762) 21.

*Graptophyllum hortense* Nees in Wall. Pl. As. Rar. 3 (1832) 102.

*Folium bracteatum* Rumph. Herb. Amb. 4: 73, t. 30 (incl. *vulgare rubrum*, et *igneum* Rumph. l. c. 73, 74).

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb* 108, November 1, 1913, from cultivated plants, altitude about 175 meters, locally known as *telaga*.

*Folium bracteatum* is cited by Linnaeus as a synonym of *Justicia picta* Linn. in its original place of publication; which, as *Graptophyllum pictum* Griff., is certainly the correct disposition of it. Hasskarl, *Neue Schlüssel* (1866) 78, has referred the several color forms, *vulgare*, *rubrum*, and *igneum*, to the varieties *album* Hassk., *rubrum* Hassk., and *igneum* Hassk., respectively.

#### PSEUDERANTHEMUM Radlkofer

**PSEUDERANTHEMUM PULCHELLUM** (Hort.) Merr. in *Philip. Journ. Sci.* 7 (1912) Bot. 248.

*Eranthemum pulchellum* Hort. *Gartenmag.* (1810) 176, t. 17.

*Eranthemum bicolor* Schrank Hort. *Monac.* (1819) t. 8.

*Pseuderanthemum bicolor* Radlk. ex Lindau in *Engl. & Prantl Nat. Pflanzenfam.* 4<sup>th</sup> (1895) 330.

**Bungum femina** Rumph. *Herb. Amb.* 6: 52, t. 21, f. 2.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 96, August 30, 1913, at low altitudes, locally known as *bunga burong*.

The specimen cited above agrees closely with Rumphius's description and figure and certainly represents *Bungum femina* Rumph. It is also unmistakably the form commonly known as *Eranthemum bicolor* Schrank or *Pseuderanthemum bicolor* Radlk., for which *Pseuderanthemum pulchellum* (Hort.) Merr. is an older name. The Rumphian species has not been previously determined in connection with modern taxonomy. Hasskarl, *Neue Schlüssel* (1866) 161, suggested that *Bungum femina* might be *Dipteracanthus ventricosus* Nees or *D. patulus* Nees.

**PSEUDERANTHEMUM CURTATUM** (C. B. Clarke) comb. nov.

*Eranthemum curtatum* C. B. Clarke in *Govt. Lab. Publ. (Philip.)* 35 (1905) 89.

*Ophiocolla altera* Rumph. *Herb. Amb.* 6: 34.

AMBOINA, Lateri and Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 94, August and September, 1913, in forests, altitude not indicated.

Hasskarl, *Neue Schlüssel* (1866) 157, thought that possibly *Ophiocolla altera* Rumph. might be referable to *Justicia ecbolium* Linn., but this suggested reduction is certainly wrong. The specimen cited above agrees fully with Rumphius's description and with our very large series of *Eranthemum curtatum* C. B. Clarke, a species of wide distribution in the Philippines, this species in turn being allied to *Eranthemum malaccense* C. B. Clarke and *E. crenulatum* Nees; all of these species must be referred to *Pseuderanthemum*.

**PSEUDERANTHEMUM RACEMOSUM** (Roxb.) Radlk. ex Lindau in Engl. & Prantl Nat. Pflanzenfam. 4<sup>th</sup> (1895) 330.

*Eranthemum racemosum* Roxb. Hort. Beng. (1814) 3, *nomen nudum*, Fl. Ind. ed. 2, 1 (1832) 113.

*Olus caprinum* Rumph. Herb. Amb. 6: 54.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 95, August 30, 1913, along roadsides at low altitudes, flowers pale purplish.

No previous identification of *Olus caprinum* Rumph. has been suggested, other than Hasskarl's reference of it to the *Acanthaceae*. The specimen cited above agrees very closely with Rumphius's description and even better with that of Roxburgh. The type of *Eranthemum racemosum* Roxb. was from the Moluccas.

#### PERISTROPHE Nees

**PERISTROPHE BIVALVIS** (Linn.) comb. nov.

*Justicia bivalvis* Linn. Amoen. Acad. 4 (1759) 134, Syst. ed. 10 (1759) 850 (type!).

*Justicia tinctoria* Roxb. Fl. Ind. 1 (1820) 124.

*Peristrophe tinctoria* Nees in Wall. Pl. As. Rar. 3 (1832) 113.

*Folium tinctorium* Rumph. Herb. Amb. 6: 51, t. 22, f. 1.

AMBOINA, Soja and Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 98, August, 1913, in light woods, altitude 200 to 400 meters.

The synonymy of this species is especially complicated, but *Justicia bivalvis* Linn. as originally published, not as currently interpreted in modern botanical literature, is clearly based wholly on *Folium tinctorium* Rumph. and nothing else. In Stickman's Herb. Amb. (1754) 26, Linnaeus erroneously referred it to *Jussiaea* [sic!] *purpurea* Linn., a manifest error for *Justicia purpurea* Linn., this species having been based on specimens collected by Osbeck in China. In Amoen. Acad. 4 (1759) 134 it appears thus: "22 *Folium tinctorium*=*Justicia bivalvis*," clearly indicating from the cited name, *Folium tinctorium*, that t. 22, f. 1, was indicated. However, in the same year, Linnaeus published *Justicia bivalvis* with a short description, Syst. ed. 10 (1759) 850, with an erroneous reference to "Rumph. VI. t. 29," which is a fern, *Athyrium esculentum* Copel; the description unmistakably applies to *Folium tinctorium* Rumph. from which it was apparently taken. In the same place Linnaeus erroneously referred t. 22, f. 1 (*Folium tinctorium*), to *Justicia purpurea* Linn., following his first treatment of it in Stickman's Herbarium Amboinense. Again, Sp. Pl. ed. 2 (1762) 23, Linnaeus referred to *Justicia purpurea* the Rumphian *Folium tinctorium* Herb. Amb. 6: 51, t. 22, f. 1, and on the same page he referred to *Justicia bivalvis* the Rumphian *Bungum* Herb. Amb.



6: 55, t. 22, f. 1 [f. 2 intended], *Bungum* being a species of *Lepidagathis* (see p. 473). Burman f., Lamarck, Loureiro, and Poiret followed Linnaeus and apparently interpreted *Justicia purpurea* Linn. from *Folium tinctorium* Rumph., citing the Rumphian name and figure as a synonym. Vahl, Murray, Willdenow, Poiret, Roemer and Schultes, and Roxburgh cite the Rumphian name and figure under *Justicia bivalvis* Linn., which, as *Peristrophe bivalvis* (Linn.) Merr., is certainly the correct disposition of it. More recent authors cite *Folium tinctorium* Rumph. under *Peristrophe tinctoria* Nees, a synonym of *P. bivalvis* (Linn.) Merr.

*Justicia purpurea* Linn. was described from specimens collected by Osbeck in the vicinity of Canton, China, and has not been definitely placed, although a simple examination of the specimen in the Linnean herbarium should settle its status; it is probably a species of *Rostellularia*. *Justicia bivalvis* Linn. has been misinterpreted by modern authors. It is described as *Dicliptera bivalvis* Juss., a species that has nothing to do with the Linnean species as originally published. Additional synonyms of *Peristrophe bivalvis* Merr. are *Sautiera tinctorium* Span. and *Justicia roxburgiana* R. & S.

Hasskarl, Neue Schlüssel (1866) 161, refers *Folium tinctorium* I to *Peristrophe tinctoria* Nees var. *concolor* Hassk. and *Folium tinctorium* II to *Peristrophe tinctoria* Nees var. *rubrinervis* Hassk., but the two are manifestly merely color variants of a single species.

#### RHINACANTHUS Nees

**RHINACANTHUS NASUTA** (Linn.) Kurz in Journ. As. Soc. Beng. 39<sup>2</sup> (1870) 79.

*Justicia nasuta* Linn. Sp. Pl. (1753) 16.

*Rhinacanthus communis* Nees in Wall. Pl. As. Rar. 3 (1832) 109.

*Gendarussa femina* Rumph. Herb. Amb. 4: 72, t. 29.

AMBOINA, near the town of Amboina, Robinson Pl. Rumph. Amb. 105, September 13, 1913, in hedge rows.

Linnaeus referred this to *Justicia nasuta* Linn., in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 126; which, as *Rhinacanthus nasuta* (Linn.) Kurz, I consider to be the correct disposition of *Gendarussa femina* Rumph. In the Systema ed. 10 (1759) 850, Linnaeus erroneously refers "Rumph. amb. IV. t. 17," = *Lawsonia inermis* Linn., to *Justicia nasuta*; and at the same time he refers "Rumph. VI. t. 29" to *Justicia bivalvis*. *Justicia bivalvis* Linn. is *Peristrophe tinctoria* Nees = *Peristrophe bivalvis* (Linn.) Merr., while "Rumph. VI. t. 29" is *Rhinacanthus*

*nasuta* (Linn.) Kurz. Other authors, however, have referred it to *Justicia gendarussa* Burm. f., which is represented by *Gendarussa* Rumph. Herb. Amb. 4: 70, t. 28 (see below). The form described as *Gendarussa femina* II from Bali is indeterminable from the data at present available and may not even belong to the *Acanthaceae*.

#### JUSTICIA Linnaeus

**JUSTICIA GENDARUSSA** Burm. f. Fl. Ind. (1768) 10.

*Justicia gendarussa* Linn. f. Suppl. (1781) 85.

*Gendarussa vulgaris* Nees in Wall. Pl. As. Rar. 3 (1832) 104.

*Gendarussa* Rumph. Herb. Amb. 4: 70, t. 28 (incl. *vulgaris alba*, *vulgaris nigra*, and *vulgaris fusca* Rumph. 70, 71).

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 104*, October 31, 1913, near the seashore, locally known as *gandarussa mera*; Hitoë messen, in light forests, *Robinson Pl. Rumph. Amb. 103*, November 5, 1913, altitude about 100 meters, locally known as *gandarussa puti*.

*Gendarussa* Rumph. was reduced by Burman f. to *Justicia gendarussa* Burm. f., in the original description of the species, which was primarily based on actual specimens in Burman's hands. The species is Burman's and was not originally described by Linnaeus as credited in most modern publications. Most authors have followed Burman in citing Rumphius's *Gendarussa* under *Justicia gendarussa* Burm. f., but a few have followed Nees and have cited it under *Gendarussa vulgaris* Nees, a synonym of *Justicia gendarussa* Burm. f. The forms described by Rumphius are hardly worthy of note, although Hasskarl referred the first to the variety *viridis* Hassk. and the second to the variety *nigra* Hassk.

#### RUBIACEAE \*

##### DENTELLA Forster

**DENTELLA REPENS** (Linn.) Forst. Char. Gen. (1776) 26, t. 13.

*Oldenlandia repens* Linn. Mant. 1 (1767) 40.

*Crusta ollae* III *angustifolia* Rumph. Herb. Amb. 5: 461, t. 170, f. 4.

This common and widely distributed herb is not represented in our Amboina collections. The Rumphian figure and description, however, unmistakably apply to *Dentella repens* Forst. The reduction to *Dentella repens* was first made by Loureiro, Fl. Cochinch. (1790) 78 (*Oldenlandia repens* Linn.). All authors, since Willdenow, who have had occasion to cite the Rumphian

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\* I am indebted to Dr. Th. Valetton for assistance in identifying our Amboina *Rubiaceae*, and for critical notes regarding Rumphian species of this family.

illustration, have placed it where it manifestly belongs, under *Dentella repens* Forst.

### HEDYOTIS Linnaeus

**HEDYOTIS VERTICILLATA** (Linn.) Lam. Ill. 1 (1791) 271.

*Oldenlandia verticillata* Linn. Mant. 1 (1767) 40.

*Hedyotis hispida* Retz. Obs. 4 (1786) 23.

*Spermacoce articularis* Linn. f. Suppl. (1781) 119.

*Hedyotis crateogonum* Spreng. Pl. Min. Cog. Pugillus 2 (1815) 35.

*Crateogonum amboinicum* II majus Rumph. Herb. Amb. 6: 25, t. 10.

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb. 158*, July 20, 1913, on coral rocks, altitude 5 meters.

*Oldenlandia verticillata* Linn. was based primarily on specimens cultivated in the botanic garden at Upsala, with an additional reference to *Crateogonum amboinicum* Rumph. The description applies in all particulars to the widely distributed plant commonly known as *Hedyotis hispida* Retz. *Spermacoce articularis* Linn. f. was likewise based on specimens cultivated at Upsala, also with a reference to Rumphius, and is undoubtedly correctly placed as a synonym of *Hedyotis verticillata* Lam. Burman f., Fl. Ind. (1768) 33, erroneously referred it to *Spermacoce tenuior* Linn.; and Poiret, in Lam. Encycl. 5 (1804) 17, considered that the Rumphian figure represented *Parietaria indica* Linn., which is an entirely erroneous disposition of it. *Hedyotis crateogonum* Spreng. was based, at least in part, on Rumphius and is unquestionably a synonym of *Hedyotis verticillata* (Linn.) Lam. as here interpreted.

**HEDYOTIS TENELLIFLORA** Blume Bijdr. (1826) 971.

*Crateogonum amboinicum* I minus Rumph. Herb. Amb. 6: 25.

This was reduced by the younger Linnaeus to *Spermacoce stricta* Linn. f. in the original description of that species, Suppl. (1781) 120, in which he was followed by Willdenow, Roemer and Schultes, Poiret, and Henschel. Miquel, Fl. Ind. Bat. 2 (1857) 182, thought that it might be the same as the Philippine *Hedyotis angustifolia* Miq., which is entirely improbable. The reduction to *Hedyotis tenelliflora* Blume was suggested by Doctor Valetton, which in all probability is the correct disposition of the Rumphian species.

### UNCARIA \* Schreber

**UNCARIA CORDATA** (Lour.) comb. nov.

*Restiaria cordata* Lour. Fl. Cochinch. (1790) 639.

*Uncaria pedicellata* Roxb. Hort. Beng. (1814) 86, *nomen nudum*, Fl. Ind. 2 (1824) 128.

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\* Retained name, Vienna Code; *Ourouparia* Aubl. (1775) is older.

*Nauclea lanosa* Poir. in Lam. Encycl. Suppl. 4 (1816) 64 (type!).

*Funis uncatus lanosus* Rumph. Herb. Amb. 5: 65, t. 34, f. 3 (fig. C, in expl. pl.).

AMBOINA, Ermes, *Robinson Pl. Rumph. Amb. 154*, August 9, 1913, along the edges of forests, altitude about 250 meters.

*Funis uncatus lanosus* Rumph. is apparently the whole basis of *Nauclea lanosa* Poir., which Haviland reduces to *Uncaria lanosa* Wall., although Poiret's species may have been based on actual specimens. Roxburgh, Fl. Ind. 2 (1824) 126, referred t. 24, f. 2, 3, of Rumphius to *Uncaria gambir* (Hunter) Roxb., which is certainly an erroneous disposition of both figures. The type of *Uncaria pedicellata* Roxb. was from the Moluccas. I have adopted Loureiro's specific name for the species as it is much older than any of the others and as there is no doubt as to the identity of *Restiaria cordata* Lour.; for Haviland, who cites it as a synonym of *Uncaria pedicellata* Roxb., examined Loureiro's original specimen in the herbarium of the British Museum. Rumphius's reduced figure of *Funis uncatus lanosus* is rather poor, but his description applies unmistakably to the plant here interpreted as *Uncaria cordata* (Lour.) Merr. Dr. Valetton thinks that fig. 3 may go with *Uncaria pteropoda* Miq. and fig. 1 with *U. cordata* Merr.

**UNCARIA SETILOBA** Benth. in Hook. Lond. Journ. Bot. 2 (1843) 223.

*Uncaria florida* Vid. Phan. Cuming. Philip. (1885) 176.

*Funis uncatus angustifolius* Rumph. Herb. Amb. 5: 63, t. 34, f. 2 (fig. B. in expl. pl.).

AMBOINA, Batoe merah and Way tommo, *Robinson Pl. Rumph. Amb. 149*, August, 1913, on river banks and hillsides, altitude 5 to 80 meters.

Roxburgh, Fl. Ind. 2 (1824) 126, referred this to *Uncaria gambir* Roxb., which is certainly wrong. Miquel, Fl. Ind. Bat. 2 (1857) 150, thought that it might be *Uncaria ferrea* DC. It is unquestionably the same as *Uncaria setiloba* Benth., the type of which was from Amboina, and which is identical with the rather widely distributed Philippine form later described by Vidal as *Uncaria florida*. The species is known only from the Philippines and Amboina.

**UNCARIA LONGIFLORA** (Poir.) comb. nov.

*Nauclea longiflora* Poir. in Lam. Encycl. Suppl. 4 (1816) 63 (type!).

*Uncaria pteropoda* Miq. Fl. Ind. Bat. 2 (1857) 343.

*Funis uncatus latifolius* Rumph. Herb. Amb. 5: 63, t. 34, f. 1 (fig. A. in expl. pl.).

AMBOINA, Way tommo and Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb. 153*, August and October, 1913, in thickets, altitude 80 to 225 meters.

*Nauclea longiflora* Poir. was based wholly on *Funis uncatulus latifolius* Rumph. and has been reduced to *Uncaria acida* Roxb., where it certainly does not belong. Under no. 153, cited above, two species are involved, one of which is apparently a form of *Uncaria pteropoda* Miq. Unfortunately the specimens are sterile. Dr. Valetton states that the Amboina specimen closely resembles those of Malacca and the Philippines in which the petioles are mostly destitute of the wings that are characteristic of the typical form of *Uncaria pteropoda* Miq., but that in the form and nervation of the leaves they are almost identical with those of the typical Sumatran and Javan form with large wings.

#### ADINA Salisbury

**ADINA FAGIFOLIA** (Teysm. & Binn.) Valetton in herb. comb. nov.

*Nauclea fagifolia* Teysm. & Binn. Cat. Hort. Bogor. (1866) 117, *nomen nudum*; Havil. in Journ. Linn. Soc. Bot. 33 (1897) 63.

*Neonauclea fagifolia* Merr. in Journ. Wash. Acad. Sci. 5 (1915) 539.

*Ulassium mas* Rumph. Herb. Amb. 3: 42, t. 23.

This species is not represented in our Amboina collections, yet unquestionably *Ulassium mas* is identical with *Nauclea fagifolia* Teysm. & Binn., a species of which the flowers and fruits have not as yet been described. Dr. Valetton has studied the species and finds it to be an *Adina*; it will be figured and described by him in a forthcoming number of *Icones Bogoriensis*. Teysmann, quoted by Hasskarl, referred the Rumphian species to *Nauclea fagifolia* Teysm. and Binn.; but Loureiro, Fl. Cochinch. (1790) 633, was entirely wrong in reducing it to *Echinus trisulcus* Lour., with which it has nothing in common. The species is cultivated in the botanic garden at Buitenzorg, Java, and is known from Celebes and Buru.

The two forms described in the same chapter with *Ulassium mas*, *U. femina* and *U. lapideum*, are too inadequately treated to warrant even a surmise as to their identity. One or both may be referable to *Adina fagifolia* Val., or they may represent entirely different species.

#### NEONAUCLEA Merrill

(*Nauclea* auct., non Linnaeus)

**NEONAUCLEA MOLUCCANA** (Miq.) Merr. in Journ. Wash. Acad. Sci. 5 (1915) 541.

*Nauclea moluccana* Miq. Ann. Mus. Bot. Lugd.-Bat. 4 (1868-69) 183.

*Laharus* Rumph. Herb. Amb. 3: 44, t. 24.

AMBOINA, Amahoesoe, Liang, and Koesoekoesoe sereh, *Robinson Pl. Rumph. Amb.* 148, 161, 162, August and November, 1913, hillsides and light woods at low altitudes, locally known as *laharong* and *nessat karang*.

This is manifestly the form Rumphius described as *Laharus*, which Hasskarl, Neue Schlüssel (1866) 49, thought might represent *Nauclea parvifolia* Roxb.=*Mitragyna parvifolia* Korth, of India and Ceylon. The Amboina plant is a true *Neonauclea* and is identical with *Neonauclea moluccana* (Miq.) Merr., the type of which was from Buru. Dr. Valetton has indicated to me that this species, although closely resembling *Nauclea purpurascens* Korth., can be distinguished by its linear-lanceolate stipules, which in Korthals's species, as in the Philippine *Neonauclea calycina* (Bartl.) Merr., are obovate-spatulate; *Nauclea purpurascens* Korth. is apparently a synonym of *Neonauclea calycina* (Bartl.) Merr. A large-leaved form, *Pl. Rumph. Amb.* 162, from coral limestone cliffs at Amahoesoe, August 28, 1913, locally known as *laharing*, was thought by Doctor Robinson to represent *Laharus femina* Rumph.

Under *Laharus* Rumphius described three forms, distinguished wholly on wood characters; these are *Laharus lapideus*, *L. femina*, and *L. mixta*. The first two are certainly *Neonauclea*, and I consider both to be *Neonauclea moluccana* Merr.; the status of the third is very doubtful, and it probably does not belong in *Neonauclea*.

#### NEONAUCLEA sp.

*Nessatus* Rumph. Herb. Amb. 3: 45, t. 25.

Regarding this form, Hasskarl, Neue Schlüssel (1866) 49, states: "*Nauclea* spec.? s. forsan *Anthocephalus indicus* Rich.?" The figure is poor and is greatly reduced in size. The leaves are described as 7 to 8 inches long,  $2\frac{1}{2}$  to 3 inches wide, with few nerves (5 to 7 in the figure), the heads solitary, long-peduncled, and smaller than those of *Laharus* (*Neonauclea moluccana* Merr.). *Nessatus* can scarcely be *Anthocephalus indicus* Rich., but is apparently a species of *Neonauclea* allied to *N. moluccana* Merr.

#### NAUCLEA Linnaeus

(*Sarcocephalus* Afzelius)

**NAUCLEA UNDULATA** Roxb. Hort. Beng. (1814) 14, *nomen nudum*, Fl. Ind. 2 (1824) 117.

*Sarcocephalus undulatus* Miq. Fl. Ind. Bat. 2 (1857) 133.

*Cadamba nocturna* Ham. ex Hensch. Vita Rumph. (1833) 156 (type!).

*Arbor noctis* Rumph. Herb. Amb. 3: 82, t. 54.

AMBOINA, Negri lama, Robinson *Pl. Rumph. Amb.* 150, September 8, 1913, in light forests, altitude about 30 meters, locally known as *humeleng*.

Loureiro, Fl. Cochinch. (1790) 141, placed this under *Nauclea*

*orientalis* Linn., to which *Nauclea undulata* Roxb. is manifestly very closely allied. Hasskarl, *Neue Schlüssel* (1866) 53, placed it with doubt under *Sarcocephalus undulatus* Miq.=*Nauclea undulata* Roxb., and I consider that he was correct in this reduction; Roxburgh's type was from the Moluccas. The species can be distinguished from the very closely allied *Nauclea orientalis* Linn. (*Sarcocephalus cordatus* Miq.) only by some relatively unimportant characters. *Arbor noctis* II Rumph. Herb. Amb. 3: 83 is probably merely a form of the same species.

**NAUCLEA MITRAGYNA** (Miq.) Merr. in Journ. Wash. Acad. Sci. 5 (1915) 536.

*Sarcocephalus mitragynus* Miq. Ann. Mus. Bot. Lugd.-Bat. 4 (1868-69) 180.

*Bancalus* Rumph. Herb. Amb. 3: 84, t. 55.

This species is not represented in our Amboina collections. Linnaeus originally reduced *Bancalus* to *Cephalanthus orientalis* Linn.=*Nauclea orientalis* Linn. (*Sarcocephalus cordatus* Miq.), in Stickman Herb. Amb. (1754) 12, Amoen. Acad. 4 (1759) 123, Syst. ed. 10 (1759) 887, Sp. Pl. ed. 2 (1762) 243, in which he was followed by Burman f., Loureiro, Poiret, de Candolle, Henschel, and Pritzel. Willdenow, Persoon, Roemer and Schultes, and other authors have referred it to *Nauclea purpurea* Roxb.; but Roxburgh, Fl. Ind. 2 (1824) 123, explicitly states that *Bancalus* Rumph. is not the same as *Nauclea purpurea* Roxb.=*Neonauclea purpurea* (Roxb.) Merr. The identification of "*Bancalus mas sive parvifolius*" Rumph. Herb. Amb. 3: 83, t. 55, f. 1, 2, with *Sarcocephalus mitragynus* Miq. was made by Miquel, his type being from Ceram. I first referred it to *Nauclea* (*Sarcocephalus*) *subdita* (Korth.) Merr., a species that is not definitely known from the Moluccas. *Nauclea mitragyna* Miq. is in cultivation in the botanic garden at Buitenzorg, Java, the specimen having been secured by Teysmann in Amboina. Dr. Valetton writes that it greatly resembles *Sarcocephalus subditus* Korth., and that he doubts whether or not it is specifically distinct from Korthals's species.

Rumphius included in his description what he took to be two "species," *Bancalus mas* and *Bancalus media* (*major* in expl. pl.); but no definite characters are indicated, either in the descriptions or in the figures, by which two distinct species can be recognized, and it is suspected that the entire description and both figures are referable to *Nauclea mitragyna* (Miq.) Merr. It is a true *Nauclea* (*Sarcocephalus*), not a *Neonauclea*.\*

\* Merrill, E. D. On the application of the generic name *Nauclea* of Linnaeus. Journ. Wash. Acad. Sci. 5 (1915) 530-542.

## ANTHOCEPHALUS A. Richard

**ANTHOCEPHALUS MACROPHYLLUS** (Roxb.) Haviland in Journ. Linn. Soc. Bot. 33 (1897) 23, t. 4, f. 32-37.

*Nauclea macrophylla* Roxb. Hort. Beng. (1814) 14, *nomen nudum*, Fl. Ind. 2 (1824) 120.

*Nauclea elegans* Teysm. & Binn. ex Hassk. in Abhandl. Naturf. Gesellsch. Halle 9 (1866) 190 (Neue Schlüssel 48) (type!).

**Samama** Rumph. Herb. Amb. 3: 36, t. 19.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb. 156*, October 20, 1913, on hillsides, altitude about 50 meters, locally known as *samama*.

*Nauclea macrophylla* Roxb. was originally described from specimens cultivated in the botanic garden at Calcutta and received from Amboina, the original tree still existing at Calcutta as late as 1897. Linnaeus, *Amoen. Acad.* 4 (1759) 122, placed *Samama*, with doubt, under *Cephalanthus orientalis* Linn., which was manifestly an erroneous disposition of it. Hasskarl, *Neue Schlüssel* (1866) 48, thought that it might be the same as *Anthocephalus morindifolius* Korth., but also quoted Teysmann to the effect that it was *Nauclea elegans* Teysm. & Binn., a name that otherwise seems never to have been published and which must be typified by *Samama* Rumph.; it is not included in *Index Kewensis*. *Samama* is manifestly the same as *Anthocephalus macrophyllus* Havil.

## MUSSAENDA Linnaeus

**MUSSAENDA FORSTENIANA** Miq. Ann. Mus. Bot. Ludg.-Bat. 4 (1868-69) 188.

*Folium principissae angustifolium* Rumph. Herb. Amb. 4: 111.

AMBOINA, Lateri, *Robinson Pl. Rumph. Amb. 165*, August 25, 1913, in forests, altitude about 160 meters.

Rumphius does not indicate to which of the two forms described the illustration pertains, but after a study of the two descriptions I have concluded that it goes with *Folium principissae latifolium*, not with *Folium principissae angustifolium*, the reverse of Hasskarl's consideration of the two. *Folium principissae angustifolium* as described is certainly represented by the specimen cited above, which differs radically from the illustration in its inflorescence. See the following species for a historical discussion of *Folium principissae*.

**MUSSAENDA REINWARDTIANA** Miq. Fl. Ind. Bat. 2 (1856) 211.

*Mussaenda dasyphylla* Miq. Ann. Mus. Bot. Lugd.-Bat. 4 (1868-69) 111.

*Folium principissae latifolium* Rumph. Herb. Amb. 4: 111, t. 51.

AMBOINA, Batoe gadjah, Batoe merah, and Koesoekoesoe sereh, *Robinson*



pl. Rumph. Amb. 168, August, 1913, on wooded hillsides and in ravines, altitude 25 to 250 meters.

The specimens agree entirely with Rumphius's description of *Folium principissae latifolium* and, except for the shape of the leaves, with the illustration of *Folium principissae*. The Rumphian plant manifestly has been interpreted by most authors largely by the figure, and Hasskarl has referred the figure to *Folium principissae angustifolium*, citing under this name the various species to which it has been reduced. Linnaeus placed it under *Mussaenda frondosa* Linn., a species typified by Ceylon specimens, in Stickman Herb. Amb. (1754) 17, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 931, Sp. Pl. ed. 2 (1762) 251, in which he was followed by Burman f., Loureiro, Willdenow, Persoon, Roemer and Schultes, and Pritzel. Lamarck, followed by Poiret, placed it under *Gardenia frondosa* Lam., a synonym of the Linnean species. Vahl, Symb. 3 (1794) 38, in distinguishing *Mussaenda glabra* Vahl from *M. frondosa* Linn. states: "Rumph. Folium Principissae huc potius pertinere videtur," in which disposition of it he was followed by Persoon, Roemer and Schultes, de Candolle, Don, Henschel, Wight and Arnott, and Dietrich; while Miquel, Fl. Ind. Bat. 2 (1857) 212, placed it under *Mussaenda frondosa* Linn. var. *glabra* (Vahl) Miq. Miquel, Fl. Ind. Bat. 2 (1759) 211, suggested that *Folium principissae latifolium* Rumph. was the same as *Mussaenda reinwardtiana* Miq. and in Ann. Mus. Bot. Lugd. Bat. 4 (1868-69) 187 that *Folium principissae* "maius" (that is, *latifolium*), might be *Mussaenda dasyphylla* Miq. Dr. Valetton states that the specimen cited above agrees absolutely with the description of *Mussaenda dasyphylla* Miq., as well as with specimens collected by Teysmann and by Boerlage, and that, although he has not seen the type specimen of *Mussaenda reinwardtiana* Miq., he can detect no real differences between the two descriptions.

#### GARDENIA Linnaeus

**GARDENIA AUGUSTA** (Linn.) comb. nov.

*Varneria augusta* Linn. Amoen. Acad. 4 (1759) 136 (type!).

*Gardenia jasminoides* Ellis in Philos. Trans. 51<sup>2</sup> (1761) 935.

*Gardenia florida* Linn. Sp. Pl. ed. 2 (1762) 305.

*Catsjopiri* Rumph. Herb. Amb. 7: 26, t. 14, f. 2.

This commonly cultivated shrub is not represented in our Amboina collections. The form figured by Rumphius is the one with double flowers and has been very generally cited as a synonym of *Gardenia florida* Linn. since it was thus reduced by Linnaeus in the original description of the species. However,

*Gardenia jasminoides* Ellis is older than the Linnean name *G. florida*; and both are antedated by *Varneria augusta* Linn., which was based wholly on the Rumphian illustration and description, but which involves a generic name never taken up by Linnaeus in his later writings, and one that has been entirely overlooked by all authors.

GUETTARDA Linnaeus

GUETTARDA SPECIOSA Linn. Sp. Pl. (1753) 991.

*Tittius litorea* Rumph. Herb. Amb. 3: 39.

AMBOINA, Amahoesoe, Robinson Pl. Rumph. Amb. 167, August 28, 1913, along the seashore.

The only previously suggested identification of *Tittius litorea* is Henschel's reference of it to *Clerodendron infortunatum* Linn., which is manifestly wrong. The description applies very closely to *Guettarda speciosa* Linn., and I am confident that this is the correct disposition of it. The wood from Ternate that is described in the same chapter, under the name *Bololo maluhi*, probably belongs to this species.

TIMONIUS\* de Candolle

TIMONIUS SERICEUS (Desf.) K. Sch. Fl. Kaiser Wilhelmsland (1889) 131.

*Polyphragmon sericeum* Desf. in Mém. Mus. Hist. Nat. Paris 6 (1820) 6, t. 2.

*Timonius rumphii* DC. Prodr. 4 (1830) 461 (type!).

*Erithalis timon* Spreng. Pl. Min. Cog. Pugillus 1 (1813) 18 (type!).

*Timonius* Rumph. Herb. Amb. 3: 216, t. 140.

AMBOINA, Paso, Robinson Pl. Rumph. Amb. 166, July 20, 1913, on grassy hillsides, altitude about 10 meters, locally known as *timon*.

Willdenow, Sp. Pl. 1<sup>2</sup> (1800) 997, made the first reduction of *Timonius*, placing it as a variety of *Erithalis polygama* Forst. It is the type and whole basis of *Erithalis timon* Spreng. and of *Timonius rumphii* DC. Miquel, Fl. Ind. Bat. 2 (1857) 234, correctly reduced it, with *Timonius rumphii* DC., to *Polyphragmon sericeum* Desf., the type of which was from Timor. By other authors it has been erroneously reduced to *Polyphragmon minus* Rich. and to *Bobea wallichiana* Kostel. The species is known from Timor, Banda, Amboina, Ternate, and New Guinea with varieties in Timor, New Guinea, and Queensland.†

\* Retained name, Brussels Congress; *Nelitris* Gaertn. (1788), *Porocarpus* Gaertn. (1791), *Polyphragmon* Desf. (1820), *Helospora* Jack (1823), and *Burneya* C. & S. (1829) are older.

† See Valetton in Bull. Dépt. Agr. Ind. Néerl. 26 (1909) 52.

## IXORA Linnaeus

IXORA CHINENSIS Lam. Encycl. 3 (1789) 344.

*Ixora stricta* Roxb. Hort. Beng. (1814) 10 (type!).

*Flamma silvarum peregrina* Rumph. Herb. Amb. 4: 107, t. 47.

AMBOINA, Ermes, Robinson Pl. Rumph. Amb. 159, August 9, 1913, from cultivated plants.

Linnaeus originally reduced this to *Pavetta indica* Linn., in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 894, Mant. 2 (1771) 331, in which erroneous disposition of it he was followed by Burman f., Murray, Willdenow, and Pritzell. Loureiro, Fl. Cochinch. (1790) 75, discusses it under *Ixora coccinea* Linn., to which it is allied, but from which it is manifestly distinct. Lamarck cites it in the original description of *Ixora chinensis*, his actual type being a specimen collected by Sonnerat, supposed to have come from China. It is the whole basis of *Ixora stricta* Roxb. as originally published in the Hortus Bengalensis \* and is undoubtedly the form later described under this name by Roxburgh, Fl. Ind. 1 (1820) 388, ed. 2, 1 (1832) 379, from specimens cultivated in the botanic garden in Calcutta, which were introduced from the Moluccas in 1798. Miquel, Fl. Ind. Bat. 2 (1857) 268, placed it under *Pavetta stricta* Blume, which is a synonym of *Ixora stricta* Roxb. The species is not a native of Amboina, but according to Rumphius it was introduced from Java about 1675.

IXORA FULGENS Roxb. Hort. Beng. (1814) 10 (type!).

*Flamma silvarum* Rumph. Herb. Amb. 4: 105, t. 46.

AMBOINA, Soja, Mahija, and Koesoekoesoe sereh, Robinson Pl. Rumph. Amb. 169, August, 1913, in light forests, altitude 250 to 450 meters, locally known as *daun pichapiring*.

*Flamma silvarum* Rumph., representing a very characteristic species, was originally reduced by Linnaeus to *Ixora coccinea* Linn., in Stickman Herb. Amb. (1754) 16, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 893, Sp. Pl. ed. 2 (1762) 159, a species with which it has little in common, and to which it is not at all closely allied. This disposition of it was accepted by Burman f., Loureiro, Willdenow, and Persoon. Roemer and Schultes, Syst. 3 (1818) 179, erroneously placed it under *Ixora incarnata* Roxb. Lamarck, Encycl. 3 (1789) 343, placed it under *Ixora lanceolata* Lam., but the species described is certainly not the same as the Amboina plant. *Flamma silvarum* is the whole

\* C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 413.

basis of *Ixora fulgens* Roxb. as originally published in the Hortus Bengalensis (1814) 10,\* while the species that Roxburgh later described under this name, Fl. Ind. 1 (1820) 387, is probably the same as the plant here referred to *Ixora fulgens* Roxb. The specimens on which the description was based were grown in the botanic garden at Calcutta, introduced from the Moluccas, and under it Roxburgh cites "*Flamma silvarum* Rumph. Amb. IV. 105. t. 46? pretty good." It has also been cited under *Ixora longiflora* Sm., *Pavetta longiflora* Sm., and by Miquel under *Pavetta amboinica* Blume. I strongly suspect that the last is a synonym of *Ixora fulgens* Roxb., but not having access to the original publications, I am unable to settle the status of *Ixora longiflora* Sm. (*Pavetta longiflora* Sm.) in connection with *Ixora fulgens* Roxb. *Ixora macrothyrsa* Teysm. & Binn. should be critically compared.

#### PSYCHOTRIA Linnaeus

##### PSYCHOTRIA sp.

*Caju panu* Rumph. Herb. Amb. 7: 12, t. 6, f. 2.

The figure represents a rather characteristic species of *Psychotria*, and the description of the seeds confirms this generic identification of *Caju panu*. Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 186, placed it in *Psychotria*. It is not represented in our Amboina collections, and further identification of it is impossible at this time. The only species of the genus known from Amboina is *Psychotria leptothyrsa* Miq. (Rel. Robins. 1736, 1749, det. Valetton), but *Caju panu* cannot be referred to Miquel's species.

#### HYDNOPHYTUM Jack

**HYDNOPHYTUM AMBOINENSE** Becc. Malesia 2 (1885) 138, t. 32, f. 1-7.

*Nidus germinans formicarium niger* Rumph. Herb. Amb. 6: 119, t. 55, f. 1.

AMBOINA, Wakeroe, Robinson Pl. Rumph. Amb. 164, October 7, 1913, on trees in a mangrove swamp.

In the original description of *Hydnophytum formicarium* Jack the Rumphian species was reduced as a synonym, but Jack's species is entirely distinct from the Amboina form. Miquel, Fl. Ind. Bat. 2 (1857) 309, placed it under *Hydnophytum montanum* Blume, which Beccari considers as a form or variety of *H. formicarium* Jack. *Hydnophytum amboinense* Becc. was described from Amboina specimens and is certainly the form that Rumphius described as *Nidus germinans formicarium niger*, which Beccari reduced to *Hydnophytum amboinense* Becc.

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\* See C. B. Robinson in Philip. Journ. Sci. 7 (1912) Bot. 413.

## MYRMECODIA Jack

MYRMECODIA RUMPHII Becc. Malesia 2 (1884) 117, t. 12, f. 1-6.

*Nidus germinans formicarium ruber* Rumph. Herb. Amb. 6: 119, t. 55, f. 2.

AMBOINA, Hoetoemoeri road, *Robinson Pl. Rumph. Amb. 152*, September 24, 1913, epiphytic on *Melaleuca*, altitude about 200 meters, locally known as *laru*.

Jack, Trans. Linn. Soc. 14 (1823) 123, reduced the Rumphian plant to *Myrmecodia tuberosa* Jack in the original description of that species, but *Myrmecodia tuberosa* Jack is a species known from Sumatra, Singapore, Java, and Borneo and is quite different from the Amboina plant. De Candolle, Prodr. 4 (1830) 450, referred it to *Myrmecodia inermis* Gaudich., which is *Hydnophytum gaudichaudii* Becc. Beccari's description of *Myrmecodia rumphii* was based on an Amboina specimen collected by him in January, 1873, and to this species he reduced *Nidus germinans formicarium ruber* Rumph., which is certainly the correct disposition of it. *Myrmecodia amboinensis* Becc., Malesia 2 (1884) 97, *nomen nudum*, is apparently merely a misprint for *Myrmecodia rumphii* Becc.

## PAEDERIA \* Linnaeus

PAEDERIA FOETIDA Linn. Mant. 1 (1767) 52.

*Apocynum foetidum* Burm. f. Fl. Ind. (1768) 71.

*Paederia amboinensis* Miq. in Ann. Mus. Bot. Lugd.-Bat. 4 (1869) 254.

*Convolvulus foetidus* Rumph. Herb. Amb. 5: 436, t. 160.

AMBOINA, Wakal, *Robinson Pl. Rumph. Amb. 163*, November 5, 1913, in thickets near the seashore, locally known as *daun konto konto*.

*Convolvulus foetidus* Rumph. was reduced by Linnaeus to *Paederia foetida* Linn. and by Burman f., to *Apocynum foetidum* Burm. f., although the types of both species were actual specimens. Practically all authors have cited *Convolvulus foetidus* as a synonym of *Paederia foetida* Linn., but there is nothing in the description or figure by which it can be distinguished from *Paederia tomentosa* Blume; for that matter there is nothing in the original description of either *Paederia foetida* Linn. or *P. tomentosa* Blume by which the two can be distinguished, yet authors generally agree in retaining them as distinct; *Convolvulus foetidus* Rumph. could with equal propriety be referred to *Paederia foetida* Blume. The actual Amboina specimen, cited above, is quite glabrous, with lanceolate leaves, and unfortun-

\* Retained name, Vienna Code; *Hondbessen* Adans. and *Dauncontu* Adans. (1763) are older.

ately presents no fruits. The fruit characters are the ones depended upon by modern botanists for distinguishing the two species here discussed. Whatever else it may prove to be, it is certainly the form described by Miquel as *Paederia amboinensis*.

#### MORINDA Linnaeus

**MORINDA CITRIFOLIA** Linn. Sp. Pl. (1753) 176.

*Bancudus latifolia* Rumph. Herb. Amb. 3: 158, t. 99.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 151, August 30, 1913, along the seashore, locally known as *binkudong*.

*Bancudus latifolia* Rumph. was first reduced to *Morinda citrifolia* Linn., in Stickman Herb. Amb. (1754) 13, Amoen. Acad. 4 (1759) 124, Syst. ed. 10 (1759) 930, Sp. Pl. ed. 2 (1762) 250, which disposition of it is manifestly correct and has been accepted by all authors. *Morinda latifolia* Rumph. is certainly the same as *Bancudus latifolia* Rumph. and accordingly is placed here, following Miquel and Hasskarl.

**MORINDA BRACTEATA** Roxb. Hort. Beng. (1814) 15, *nomen nudum*, Fl. Ind. 2 (1824) 198.

*Bancudus angustifolia* Rumph. Herb. Amb. 3: 157, t. 98.

AMBOINA, Hatiwe, *Robinson Pl. Rumph. Amb.* 155, September 14, 1913, in formerly cultivated lands, altitude about 10 meters.

Linnaeus erroneously reduced *Bancudus angustifolia* Rumph. to *Morinda umbellata* Linn., Sp. Pl. ed. 2 (1762) 250, in which he was followed by Burman f., Loureiro, Lamarck, Roemer and Schultes, and Pritzel. Willdenow, Sp. Pl. 1 (1798) 992, thought that it might be a variety of *Morinda citrifolia* Linn.; while Roemer and Schultes, Syst. 5 (1819) 215, placed it with doubt under *Morinda angustifolia* Roth. Roxburgh cites it in the original description of *Morinda bracteata* Roxb., with the statement that it "has the process of the calyx of my plant, but I cannot say they agree in other respects." It seems to be the same as *Morinda bracteata* Roxb. var. *celebica* Miq.\*

#### CUCURBITACEAE

##### MELOTHRIA Linnaeus

**MELOTHRIA INDICA** Lour. Fl. Cochinch. (1790) 35.

*Cucumis murinus viridis* Rumph. Herb. Amb. 5: 463, t. 171, f. 2.

AMBOINA, *Robinson, Pl. Rumph. Amb.* 394, July 22, 1913, along the banks of the river, locally known as *daun pepinyu tikus*.

This reduction was made by Loureiro in the original descrip-

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\* See Valetton Ic. Bogor. 3 (1908) t. 269.

tion of *Melothria indica* and is apparently correct. As noted by Rumphius, the fresh plant has quite the odor and taste of the ordinary cucumber, *Cucumis sativus* Linn.

**MELOTHRIA JAVANICA** (Miq.) Cogn. in DC. Monog. Phan. 3 (1881) 625, ex descr.

*Karivia javanica* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1856) 661.

*Cucumis murinus ruber* Rumph. Herb. Amb. 5: 463, t. 171, f. 1.

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb. 393*, October 28, 1913, in open ravines, altitude about 70 meters, the fruit red, locally known as *pepinyo tikos*.

The identity of the specimen with *Cucumis murinus ruber* is quite certain, although the petioles are shorter than indicated by Rumphius's figure. Its identification with *Melothria javanica* has been made from the description alone, as I have seen no authentic specimens of that species; it is, however, reported from Amboina by Cogniaux. Hasskarl, *Neue Schlüssel* (1866) 147, suggests that it is *Aechmandra blumeana* Roem. = *Melothria marginata* (Blume) Cogn. Just what species is represented is possibly doubtful, but there is no question as to the correctness of the generic identification.

#### LUFFA (Tournefort) Linnaeus

**LUFFA ACUTANGULA** (Linn.) Roxb. Hort. Beng. (1814) 70, Fl. Ind. ed. 2, 3 (1832) 713.

*Cucumis acutangulus* Linn. Sp. Pl. (1753) 1011.

*Petola bengalensis* Rumph. Herb. Amb. 5: 408, t. 149.

This species is not represented in our Amboina collection, but is generally cultivated in the Indo-Malayan region and probably still occurs in Amboina. *Petola bengalensis* was reduced by Linnaeus to *Cucumis acutangulus*, in *Stickman Herb. Amb.* (1754) 24, *Amoen. Acad.* 4 (1759) 132, *Sp. Pl. ed. 2* (1763) 1436, and by many subsequent authors it was cited under *Luffa acutangula* (Linn.) Roxb. Rumphius's figure is excellent.

**LUFFA CYLINDRICA** (Linn.) Roem. Syn. 2 (1846) 63.

*Momordica luffa* Linn. Sp. Pl. (1753) 1009.

*Momordica cylindrica* Linn. l. c.

*Luffa sylvestris* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1856) 666 (type!).

*Luffa petola* Ser. in DC. Prodr. 3 (1828) 303 (type!).

*Petola seu Petola Tschina* Rumph. Herb. Amb. 5: 405, t. 147.

*Petola sylvestris* Rumph. l. c. 409, t. 150.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 395*, climbing on trees near the beach, locally known as *kalabasa utan*.

The specimen cited is the ordinary wild form, which differs from the commonly cultivated form in its somewhat smaller

leaves and much smaller fruits. This wild form is of wide distribution in the Malayan region, especially in thickets near the seashore. Plate 147 of Rumphius is an excellent representation of the cultivated form, while plate 150 is a fair representation of the wild form. *Petola* of Rumphius was reduced by Linnaeus to his *Momordica luffa*, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1278, but in Sp. Pl. ed. 2 (1763) 1433 he cites *t. 148*. It is the whole basis of *Luffa petola* Ser. in DC. Prodr. 3 (1828) 303. Another synonym is *Luffa pentandra* Roxb. Fl. Ind. ed. 2, 3 (1832) 712, this author also citing *Petola* Rumph. Herb. Amb. 5: *t. 147* as representing his species. *Petola silvestris* Rumph. Herb. Amb. 5: 409, *t. 150*, is the whole basis of *Luffa sylvestris* Miq. Fl. Ind. Bat. 1<sup>1</sup> (1856) 666, which was erroneously reduced by Cogniaux, DC. Monog. Phan. 3 (1881) 461, to *Luffa acutangula* Roxb.; this synonym should be transferred to *Luffa cylindrica* Roem., the actual Amboina specimen cited above being a topotype of Miquel's species.

#### CITRULLUS Necker

**CITRULLUS VULGARIS** Schrad. in Linnaea 12 (1838) 412.

*Cucurbita citrullus* Linn. Sp. Pl. (1753) 1010.

*Anguria indica* Rumph. Herb. Amb. 5: 400, *t. 146, f. 1*.

*Anguria indica altera* Rumph. l. c. 400.

AMBOINA, in waste places near Castle Victoria, *Robinson Pl. Rumph. Amb. 392*, November 13, 1913, locally known as *pateka*.

The figure given by Rumphius is a good representation of the common watermelon. It was first reduced to *Cucurbita citrullus* by Linnaeus, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1278, Sp. Pl. ed. 2 (1763) 1435, this reduction being followed by all early authors.

#### CUCUMIS Linnaeus

**CUCUMIS SATIVUS** Linn. Sp. Pl. (1753) 1012.

*Cucumis ? rumphii* Hassk. in Abh. Naturf. Gesellsch. Halle 9 (1866) 280 (Neue Schlüssel (1866) 138) (type!).

*Cucumis indicus* I *vulgaris* Rumph. Herb. Amb. 5: 404.

*Cucumis indicus* III *sinensis* Rumph. Herb. Amb. 5: 404, *t. 146, f. 2*.

The common cucumber is not represented in our Amboina collections, but is widely cultivated in the Malay Archipelago. There is no doubt whatever as to the correctness of the reduction of *Cucumis indicus vulgaris*, while I am equally certain that *C. indicus sinensis* is but a small form of the same species;



the latter is the whole basis of *Cucumis* ? *rumphii* Hassk., which, incidentally, is not listed in Index Kewensis. The figure is very poor. *Cucumis indicus* II boetonensis Rumph. l. c. 404 is probably another form of *Cucumis sativus* Linn. with somewhat 3-angled fruits; Hasskarl suggests that it may be *C. trigonus* Roxb. or *C. turbinatus* Roxb. (= *trigonus* Roxb.), which can hardly be accepted on account of the geographic range of Roxburgh's species, while Rumphius's description does not agree with the characters of *C. trigonus* Roxb. *Cucumis indicus* IV maximus Rumph. is referred by Hasskarl to *Cucumis conomon* Thunb.=*C. melo* Linn., and is probably a form of the latter.

**CUCUMIS MELO** Linn. Sp. Pl. (1753) 1011.

*Melo* Rumph. Herb. Amb. 5: 404.

The description doubtless applies to this Linnean species, to which *Melo* Rumph. was reduced by Henschel. The major part of the description in this chapter, however, refers to the common cucumber, *Cucumis sativus* Linn.

#### **BENINCASA** Savi

**BENINCASA HISPIDA** (Thunb.) Cogn. in DC. Monog. Phan. 3 (1881) 513.

*Cucurbita hispida* Thunb. Fl. Jap. (1784) 322.

*Benincasa cerifera* Savi in Bibl. Ital. 9 (1818) 158.

*Camolenga* Rumph. Herb. Amb. 5: 395, t. 143.

AMBOINA, Robinson Pl. Rumph. Amb. 396, August 23, 1913, along roadsides, locally known as *labu*.

The identity of *Camolenga* is so evident that it scarcely needs discussion, for Rumphius's figure is an excellent one of this commonly cultivated plant. By Linnaeus it was erroneously reduced to *Cucurbita pepo* Linn., in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1859) 132, Syst. ed. 10 (1759) 1278, but generally it has been correctly placed by modern authors.

#### **LAGENARIA** Seringe

**LAGENARIA LEUCANTHA** (Duch.) Rusby in Mem. Torr. Bot. Club 4: 43.

*Cucurbita leucantha* Duch. in Lam. Encycl. 2 (1782) 150.

*Cucurbita lagenaria* Linn. Sp. Pl. (1753) 1010.

*Lagenaria vulgaris* Ser. in Mém. Soc. Phys. Genève. 3<sup>1</sup> (1825) 25.

*Cucurbita lagenaria* Rumph. Herb. Amb. 5: 397, t. 144.

This commonly cultivated plant is not represented in our Amboina collections. The reduction was made by Linnaeus, in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1859) 132, Syst. ed. 10 (1759) 1278, has been very generally followed by other authors, and is certainly the correct disposition of the Rumphian plant. It is suspected that the plant described as

*Cucurbita indica vulgaris* Rumph. Herb. Amb. 5: 398, is also a form of *Lagenaria leucantha* Rusby; although Hasskarl, Neue Schlüssel (1866) 137, does not definitely place it. It has been confused with *Cucurbita pepo* Linn. and *C. melopepo* Linn.

### TRICHOSANTHES Linnaeus

#### TRICHOSANTHES TRIFOLIA (Linn.) comb. nov.

*Momordica trifolia* Linn. in Stickman Herb. Amb. (1754) 24, Amoen.

Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1278 (type!).

*Momordica trifoliata* Linn. Sp. Pl. ed. 2 (1763) 1434 (type!); Burm. f.

Fl. Ind. (1768) 309; Willd. Sp. Pl. 4 (1805) 604.

*Trichosanthes trifoliata* Blume Bijdr. (1826) 936; Cogn. in DC. Monog.

Phan. 3 (1881) 383.

*Involucraria trifoliata* Roem. Syn. (1846) 99.

*Poppya sylvestris* Rumph. Herb. Amb. 5: 414, t. 152, f. 2.

This species is not represented in our Amboina collections. The change of name is necessary as *Momordica trifolia* Linn. antedates *M. trifoliata* Linn.; both are based wholly on the Rumphian figure and description. It is to be noted, however, that while Linnaeus in his first and second references correctly cited the plate, he gave as the name *Olus vespertilionis*, which appears, not in the descriptive text, but as a secondary name on page 413 in the explanation of the plate. *Trichosanthes trifoliata* Blume was based on *Momordica trifoliata* Linn., with the addition of Javan specimens. It is barely possible that the Amboina plant is not specifically identical with the Javan one, a point for the future monographer to determine.

#### TRICHOSANTHES ANGUINA Linn. Sp. Pl. (1753) 1008.

*Cucumis anguinus* Linn. Syst. ed. 10 (1759) 1279, Sp. Pl. ed. 2 (1763) 1437 (type!).

*Petola anguina* Rumph. Herb. Amb. 5: 407, t. 148.

This species is not represented in our Amboina collections. There is no doubt, however, as to the identity of *Petola anguina* with the widely cultivated *Trichosanthes anguina* Linn. It is to be noted that *Cucumis anguinus* Linn. was based wholly on the Rumphian reference and published quite independently of *Trichosanthes anguina* Linn., both appearing in the second edition of the Species Plantarum, the former on page 1437, the latter on page 1432.

### CUCURBITA Linnaeus

#### CUCURBITA PEPO Linn. Sp. Pl. (1753) 1010 p. p.

*Pepo indicus* Burm. Index Universalis Herb. Amb. 7 (1755) [6] (type!).

*Pepo indicus* Rumph. Herb. Amb. 5: 399, t. 145.

Three forms are described by Rumphius, all of which I consider to represent variants of *Cucurbita pepo* Linn. The figure represents a form of the common squash, but was thought by Teysmann, quoted by Hasskarl, *Neue Schlüssel* (1866) 138, to represent *Lagenaria hispida* Ser.=*Benincasa hispida* Cogn., which is figured and described by Rumphius under the name *Camolenga* (see p. 493). Hasskarl thought that it was possibly intended for *Cucurbita cantalupensis* Haberle. *Pepo indicus* Burm. does not appear in *Index Kewensis*.

#### COCCINEA Wight and Arnott

COCCINEA CORDIFOLIA (Linn.) Cogn. in DC. Monog. Phan. 3 (1881) 529.

*Bryonia cordifolia* Linn. Sp. Pl. (1753) 1012.

*Bryonia grandis* Linn. Mant. 1 (1767) 126.

*Momordica monadelphapha* Roxb. Fl. Ind. ed. 2, 3 (1832) 708.

*Vitis alba indica* Rumph. Herb. Amb. 5: 448, t. 166, f. 1.

This species is not represented in our Amboina collections; according to Rumphius it was an introduced and cultivated plant in Amboina. *Vitis alba indica* Rumph. was originally reduced by Linnaeus to *Bryonia cordifolia* Linn. Syst. ed. 10 (1759) 1279; but later, Mant. 1 (1767) 126, it was placed under *Bryonia grandis* Linn., which, however, is a synonym of *Coccinea cordifolia* (Linn.) Cogn. It is cited by Roxburgh in the original description of *Momordica monadelphapha* Roxb.; and by other authors it has been cited under *Coccinea indica* W. & A., *C. loureiriana* Roem., and *C. grandis* Roem., all synonyms of *Coccinea cordifolia* (Linn.) Cogn. The species is widely distributed in the Indo-Malayan region in cultivation and is probably a native of British India.

#### MOMORDICA (Tournefort) Linnaeus

MOMORDICA CHARANTIA Linn. Sp. Pl. (1753) 1009.

*Momordica indica* Linn. in Stickm. Herb. Amb. (1754) 24, Amoen. Acad. 4 (1759) 132 (type!).

*Amara indica* Rumph. Herb. Amb. 5: 410, t. 151.

*Amara sinica* Rumph. l. c. 411.

*Amara silvestris* Rumph. l. c. 413, t. 152, f. 1?

AMBOINA, Paso, *Robinson Pl. Rumph. Amb. 391*, on trees near the beach, October 31, 1913, locally known as *papari*.

The reduction of *Amara indica* Rumph. to *Momordica charantia* Linn. is manifestly correct and scarcely needs discussion. It is to be noted, however, that the Rumphian figure is the whole basis of *Momordica indica* Linn., published in 1754, repeated in 1759, but which does not appear in subsequent literature; it is not included in *Index Kewensis*. *Amara sinica*

Rumph. is manifestly one of the cultivated forms with long fruits. *Amara sylvestris* may be the wild form with greatly reduced fruits, but there are some points in Rumphius's description that militate against this reduction. The figure of the latter is very poor, presenting a habit sketch only, without flowers or fruits.

**MOMORDICA COCHINCHINENSIS** (Lour.) Spreng. Syst. 3 (1826) 14.

*Muricia cochinchinensis* Lour. Fl. Cochinch. (1790) 596.

*Poppya rotunda* Rumph. Herb. Amb. 5: 414, t. 153.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb.* 390, November 29, 1913, climbing on trees along small streams near sea level, the fruit orange-red, locally known as *pepinyu tikus*.

Miquel, Fl. Ind. Bat. 1<sup>1</sup> (1856) 676, has placed this under *Trichosanthes cucumerina* Linn.; but the description, especially of the characteristic bracts and of the flower, is manifestly applicable to *Momordica*, not to *Trichosanthes*. *Poppya oblonga* Rumph., l. c. 414, is unquestionably also a species of *Momordica*, from the description; although Hasskarl, Neue Schlüssel (1866) 140, suggests that it is *Involucaria palmata* Roem.=*Trichosanthes bracteata* Voigt.

## GOODENIACEAE

### SCAEVOLA Linnaeus

**SCAEVOLA FRUTESCENS** (Mill.) Krause in Engl. Pflanzenreich 54 (1912) 125.

*Lobelia frutescens* Mill. Gard. Dict. ed. 8 (1768) no. 1.

*Lobelia taccada* Gaertn. Fruct. 1 (1788) 119, t. 25.

*Scaevola koenigii* Vahl Symb. Bot. 3 (1794) 36.

*Buglossum litoreum* Rumph. Herb. Amb. 4: 116, t. 54.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 214, September 18, 1913, on rocks along the seashore, locally known as *bapacheda*.

*Buglossum litoreum* Rumph. was first reduced by Linnaeus to *Lobelia plumieri* Linn.=*Scaevola plumieri* Vahl, in Stickman Herb. Amb. (1754) 17, Amoen. Acad. 4 (1759) 127, Syst. ed. 10 (1759) 1237, which is a species distinct from *Scaevola frutescens* Krause, not the same as *Buglossum litoreum* Rumph. Murray, Syst. Veg. (1774) 178, referred it to *Scaevola lobelia* Murr., a synonym of *S. plumieri* Vahl. Other authors have reduced it as follows: Poiret to *Lobelia taccada* Gaertn.; Vahl to *Scaevola koenigii* Vahl; Roxburgh to *Scaevola taccada* Roxb.; and de Candolle to *Scaevola velutina* Presl; all are synonyms of *Scaevola frutescens* (Mill.) Krause.

## COMPOSITAE

## VERNONIA Schreber

**VERNONIA CINEREA** (Linn.) Less. in *Linnaea* 4 (1829) 291.

*Conyza cinerea* Linn. Sp. Pl. (1753) 862.

*Senecio amboinicus* Rumph. Herb. Amb. 6: 36, t. 14, f. 2.

AMBOINA, in and about the town of Amboina, *Robinson Pl. Rumph. Amb.* 426, August 4, 1913, in waste places, along roadsides, on walls, etc.

*Senecio amboinicus* was first reduced by Linnaeus, *Amoen. Acad.* 4 (1759) 134, Syst. ed. 10 (1759) 1213, Sp. Pl. ed. 2 (1763) 1208, to *Conyza chinensis* Linn., which is supposed to be *Blumea chinensis* (Linn.) DC. Lamarck, *Encycl.* 2 (1768) 83, correctly reduced it to *Conyza cinerea* Linn.=*Vernonia cinerea* Less. Blume, *Bijdr.* (1826) 893, places it under his *Vernonia linifolia*, while de Candolle, *Prodr.* 5 (1836) 25, places it under *Vernonia leptophylla* DC.; both of these are synonyms of *Vernonia cinerea* (Linn.) Less.

## ADENOSTEMMA Forster

**ADENOSTEMMA LAVENIA** (Linn.) O. Kuntze Rev. Gen. Pl. 1 (1891) 304.

*Verbesina lavenia* Linn. Sp. Pl. (1753) 902.

*Adenostemma viscosum* Forst. Char. Gen. (1776) 90.

*Olus scrofinum album* Rumph. Herb. Amb. 6: 34, t. 14, f. 1.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 427, July 25, 1913, in wet places.

Linnaeus, *Amoen. Acad.* 4 (1759) 134, Sp. Pl. ed. 2 (1763) 1208, followed by Burman f., *Fl. Ind.* (1768) 179, erroneously reduced *Olus scrofinum* to *Conyza cinerea* Linn.=*Vernonia cinerea* Less. The description given by Rumphius is unmistakably applicable to *Adenostemma*, while the figure is a fair representation of this common and widely distributed species. Hasskarl, *Neue Schlüssel* (1866) 158, considered that *Olus scrofinum album* was in all probability *Adenostemma viscosum* Forst.

## AGERATUM Linnaeus

**AGERATUM CONYZOIDES** Linn. Sp. Pl. (1753) 839.

*Olus scrofinum rubrum* Rumph. Herb. Amb. 6: 35.

AMBOINA, roadsides in and about the town of Amboina, *Robinson Pl. Rumph. Amb.* 428, August 4, 1913.

The description agrees sufficiently well with *Ageratum conyzoides* Linn. to render this determination of *Olus scrofinum rubrum* fairly certain. Hasskarl, *Neue Schlüssel* (1866) 158, has suggested that it may be a species of *Conyza* (*Blumea*) or *Vernonia*.

## BLUMEA \* de Candolle

BLUMEA BALSAMIFERA (Linn.) DC. Prodr. 5 (1836) 447.

*Conyza balsamifera* Linn. Sp. Pl. ed. 2 (1763) 1208.*Conyza odorata* Rumph. Herb. Amb. 6: 55, t. 24, f. 1.AMBOINA, Lateri, *Robinson Pl. Rumph. Amb.* 417, August 25, 1913, in open woods, altitude about 100 meters.

The Rumphian reference given by Linnaeus in the original publication of *Conyza balsamifera* Linn. is presumably the type of the species. It is the first citation given by Linnaeus, and there is no evidence that he had an actual specimen before him. The species has very generally been correctly interpreted by succeeding authors, *Blumea balsamifera* (Linn.) DC. being a rather well-marked and characteristic species of wide Indo-Malayan distribution. Loureiro placed the Rumphian figure under his *Baccharis salvia*, Fl. Cochinch. (1790) 494, but *Baccharis salvia* Lour. is a synonym of *Blumea balsamifera* (Linn.) DC. Another synonym is *Pluchea balsamifera* Less. in *Linnaea* 6 (1831) 150. It is to be noted that the actual Amboina specimens are much less pubescent than are Indo-Malayan specimens generally placed under *Blumea balsamifera* DC.; the leaves are more lobed at the base, as shown in Rumphius's figure, and in aspect approach the Malayan species generally known as *Blumea appendiculata* (Blume) DC. The involucre bracts, however, are densely pubescent.

BLUMEA APPENDICULATA (Blume) DC. Prodr. 5 (1836) 447.

*Conyza appendiculata* Blume Bijdr. (1826) 895, non Lam.*Conyza mas* Rumph. Herb. Amb. 6: 56?*Conyza cadaverum* Rumph. l. c.?AMBOINA, Lateri, *Robinson Pl. Rumph. Amb.* 416, August 25, 1913, in wet places at an altitude of 100 meters, the plant 1 to 2.5 meters high.

The specimen probably represents both *Conyza mas* and *C. cadaverum* as described by Rumphius and is the same as the Philippine plant that has been interpreted as *Blumea appendiculata* (Blume) DC. The specific name *appendiculata* is invalidated by *Conyza appendiculata* Lam., but no change is made here in consideration of the fact that the status of *Blumea appendiculata* DC. is very uncertain; it may prove to be merely a form of *Blumea macrophylla* (Blume) DC. or of *Blumea aromatica* (Wall.) DC., or both of these may prove to be but a single species. An examination of the actual types and a critical revision of the entire genus are desirable.

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\*Retained name, Vienna Code; *Placus* Lour. (1790) is older.

**BLUMEA CHINENSIS** (Linn.) DC. Prodr. 5 (1836) 444.

*Conyza chinensis* Linn. Sp. Pl. (1753) 862.

*Conyza pubigera* Linn. Mant. 1 (1767) 113, saltem quoad syn. Rumph.!

*Sonchus volubilis* Rumph. Herb. Amb. 5: 299, t. 103, f. 2.

AMBOINA, Way tommo, *Pl. Rumph. Amb.* 421, August 17, 1913, in thickets along the river, altitude about 50 meters, flowers yellow.

*Conyza chinensis* Linn. was based solely on a specimen collected in China by Toren, and must be interpreted from that specimen. Later, Linnaeus himself referred to it *Sonchus volubilis* Rumph.; and, as *Blumea chinensis* DC. is at present interpreted, this reduction seems to be correct. At least the Amboina plant is identical with the Philippine and Malayan form that appears in herbaria as *Blumea chinensis* DC. The reduction was made by Linnaeus, in Stickman Herb. Amb. (1754) 22, but is excluded in the reprint of this work in Amoen. Acad. 4 (1759) 131. The figure is again cited by Linnaeus, Mant. 1 (1767) 113, under *Conyza pubigera* Linn.; but the species was based primarily on specimens cultivated in the botanic garden at Upsala, and these specimens, in all probability, were not of the same species as the plant Rumphius described and figured. Loureiro, Fl. Cochinch. (1790) 485, placed it under his *Cacalia procumbens*, but *Cacalia procumbens* Lour. is supposed to be identical with *Gynura sarmentosa* DC. De Candolle, Prodr. 6 (1837) 298, places it under *Gynura sarmentosa* (Blume) DC. with the following statement:

Icon. Rumph. 5 t. 103, f. 2 nostram plantam non male refert et ideo forte *Cacalia procumbens* Lour. coch. 2. p. 592 huc referenda?

*Sonchus volubilis* Rumph. is certainly not the same as *Gynura sarmentosa* (Blume) DC.

**BLUMEA** sp.

*Conyza indica minor* Rumph. Herb. Amb. 6: 56?

AMBOINA, Kati-kati, *Robinson Pl. Rumph. Amb.* 415, October 19, 1913, in grasslands, altitude about 70 meters.

The identity of *Conyza indica minor* with *Blumea* is merely possible, the description being too indefinite to warrant a positive identification at this time. Burman f., Fl. Ind. (1768) 180, mentions it under *Conyza hirsuta* Linn., but it certainly is not this species. It can hardly be *Blumea balsamifera* DC. as suggested by Henschel, and it certainly cannot be *Vicoa indica* DC. var. *attenuata* DC. as suggested by Hasskarl, Neue Schlüssel (1866) 162. Even if the specimen cited above represents the Rumphian *Conyza indica minor*, which is very doubtful, I cannot

refer it definitely to any species of *Blumea*, although it doubtless represents some described species of this difficult genus.

#### PLUCHEA Cassini

**PLUCHEA INDICA** (Linn.) Less. in *Linnaea* 6 (1831) 150.

*Baccharis indica* Linn. Sp. Pl. (1753) 861.

*Sonchus volubilis javanicus* Rumph. Herb. Amb. 5: 299, t. 104, f. 1.

AMBOINA, near the town of Amboina, *Robinson Pl. Rumph. Amb.* 422, September 25, 1913, along borders of tidal swamps, locally known as *biluntas*.

The Rumphian species was correctly reduced to *Baccharis indica* by Burman f., Fl. Ind. (1768) 178; but Loureiro, Fl. Cochinch. (1790) 495, erroneously referred it to *Conyza pubigera* Linn., which is a species of *Blumea* (see p. 499). Lamarck, Encycl. 2 (1768) 84, suggested that it might be the same as *Conyza prolifera* Lam. = *Vernonia cinerea* (Linn.) Less.; and, finally, de Candolle, Prodr. 5 (1836) 320, placed it under *Microglossa volubilis* DC. *Pluchea indica* (Linn.) Less. is certainly the correct disposition of *Sonchus volubilis javanicus* Rumph. and the figure cited above, but *Sonchus volubilis* Rumph. l. c. 5:299, t. 103, f. 2, is *Blumea chinensis* DC.

#### ECLIPTA \* Linnaeus

**ECLIPTA ALBA** (Linn.) Hassk. Pl. Jav. Rar. (1848) 528.

*Verbesina alba* Linn. Sp. Pl. (1753) 902.

*Ecliptica* Rumph. Herb. Amb. 6: 43, t. 18, f. 1.

AMBOINA, *Robinson Pl. Rumph. Amb.* 423, July 29 and August 30, 1913, near the town of Amboina, in sago swamps and in wet places, locally known as *gandarussa utan*.

This was erroneously reduced by Burman f., Fl. Ind. (1768) 184, to *Verbesina biflora* Linn. (= *Wedelia biflora* DC.), in which he was followed by Linnaeus, Mant. 2 (1771) 475, and by Murray, Syst. Veg. (1774) 648. Other names involved are *Eclipta erecta* Linn., *E. prostrata* Linn., and *E. alba* Hassk. var. *erecta* Hassk., all of which are properly synonyms of *Eclipta alba* (Linn.) Hassk.

#### WEDELIA Jacquin

**WEDELIA BIFLORA** (Linn.) DC. in Wight Contrib. (1834) 18.

*Verbesina biflora* Linn. Sp. Pl. ed. 2 (1763) 1272.

*Verbesina aquatica* Burm. Index Alt. Herb. Amb. (1769) [18] (type!).

*Seruneum aquatile* Rumph. Herb. Amb. 5: 423, t. 156, f. 1.

\* Retained name, Brussels Congress; *Eupatoriophalacron* Adans. (1763) is older.



AMBOINA, *Caju poeti*, *Robinson Pl. Rumph. Amb.* 419, August 2, 1913, borders of light forests, ascending to an altitude of about 400 meters.

Miquel, *Fl. Ind. Bat.* 2 (1857) 73, suggests that *Seruneum aquatile* is nearly allied to *Wollastonia strigulosa* DC.; while Hasskarl, *Neue Schlüssel* (1866) 142, places it under *Wedelia scaberrima* DC. I cannot see why the Amboina plant, which certainly represents *Seruneum aquatile*, should not be referred to the common and widely distributed *Wedelia biflora* (Linn.) DC. The forms mentioned by Rumphius, l. c. 423, 426, as *I album*, *II rubrum*, and *III album lanuginosum* are all apparently referable to *Wedelia* and may be forms of *Wedelia biflora* DC.

#### SPILANTHES Jacquin

SPILANTHES ACMELLA (Linn.) Murr. Syst. (1774) 610.

*Verbesina acmella* Linn. Sp. Pl. (1753) 901.

ABCdaria Rumph. Herb. Amb. 6: 145, t. 65.

AMBOINA, *Robinson Pl. Rumph. Amb.* 418, August 20, 1913, in a sago swamp near the town of Amboina.

This common and widely distributed species was unquestionably correctly reduced by Linnaeus, in *Stickman Herb. Amb.* (1754) 28, *Amoen. Acad.* 4 (1759) 135, *Sp. Pl. ed.* 2 (1763) 1271, to *Verbesina acmella* Linn. = *Spilanthes acmella* Murr. Through error it is cited as a synonym of *Hedysarum gangeticum* Linn. (= *Desmodium gangeticum* DC.) by Linnaeus in his *Systema ed.* 10 (1759) 1169. Other names involved, to which *ABCdaria* has been reduced, are *Bidens acmella* Lam., *Spilanthes pseudo-acmella* Murr., and *Spilanthus tinctorius* Lour.; the first two being proper synonyms of *Spilanthes acmella* Murr., the latter supposed to be *Adenostemma viscosum* Forst., with which *ABCdaria* of Rumphius has little in common.

#### BIDENS Linnaeus

BIDENS CHINENSIS Willd. Sp. Pl. 3 (1804) 1719.

*Bidens pilosa* Linn. var. *chinensis* Linn. Mant. 3 (1771) 281?

*Agrimonia molucca* Rumph. Herb. Amb. 6: 38, t. 15, f. 2.

AMBOINA, *Batoe merah*, *Robinson Pl. Rumph. Amb.* 424, July 30, 1913, in rocky soil, altitude about 10 meters.

Linnaeus originally reduced *Agrimonia molucca* Rumph. to *Bidens bipinnata* Linn., in *Stickman Herb. Amb.* (1754) 26, *Amoen. Acad.* 4 (1759) 134, where it certainly does not belong. Loureiro, *Fl. Cochinch.* (1790) 488, transferred it to *Bidens pilosa* Linn., a species closely allied to *B. chinensis* Willd., and one to which Willdenow's species has very generally been reduced by most authors. Willdenow cites *Agrimonia molucca* in the

original description of *Bidens chinensis*, this being manifestly the correct disposition of it. De Candolle, Prodr. 5 (1836) 596, placed it with doubt under *Bidens wallichii* DC., which is a synonym of *B. chinensis* Willd.; while Miquel, Fl. Ind. Bat. 2 (1857) 78, placed it under *Bidens peduncularis* Gaudich. The form described by Miquel under this name is not Gaudichaud's species, but is *Bidens chinensis* Willd. As noted above *Bidens chinensis* Willd. has very generally been sunk in *B. pilosa* Linn., but it is specifically distinct.\* The Amboina material has been determined as *Bidens chinensis* Willd. by Mr. E. E. Sherff, who is making a critical study of the genus.

#### CHRYSANTHEMUM Linnaeus

**CHRYSANTHEMUM INDICUM** Linn. Sp. Pl. (1753) 889.

*Matricaria sinensis* Rumph. Herb. Amb. 5: 259, t. 91, f. 1 (incl. I alba, II lutea, III rubra).

This widely distributed, cultivated plant is not represented in our Amboina collections. The figure is an excellent representation of one of the commonly cultivated Malayan forms. It was first reduced by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1221, Sp. Pl. ed. 2 (1763) 1253, and this reduction has been followed by all subsequent authors.

#### ARTEMISIA Linnaeus

**ARTEMISIA VULGARIS** Linn. Sp. Pl. (1753) 848.

*Artemisia latifolia* Rumph. Herb. Amb. 5: 261, t. 91, f. 2.

*Artemisia latifolia rubra* Rumph. l. c. 261?

There is no specimen of this widely distributed and well-known species in our Amboina collections. The figure is an excellent representation of *Artemisia vulgaris*. The reduction of the Rumphian figure and description was first made by Burman f., Fl. Ind. (1768) 177, in which he was followed by Loureiro, Fl. Cochinch. (1790) 491. Willdenow, Sp. Pl. 3 (1800) 1846, placed it under his *Artemisia indica*, which he considered to represent a species distinct from the common European *Artemisia vulgaris* Linn.; it is, however, a synonym of *Artemisia vulgaris* Linn. Hasskarl, Neue Schlüssel (1866) 118, suggested that *Artemisia latifolia rubra* Rumph. might be the same as *Artemisia grata* Wall.=*A. roxburghiana* Bess.; the range of the latter makes this suggested reduction an impossible one. It

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\* See Schulz, O. E. *Bidens chinensis* (L.) Willd. und verwandte Arten. *Engl. Bot. Jahrb.* 50 (1914) Suppl. 176-187.

may be a form of the common *Artemisia vulgaris* Linn., or it may be an entirely different species. The description is too indefinite to permit of its certain determination. It was not from Amboina, but from a small island, Tagoelanda, near the northern end of Celebes.

#### CARTHAMUS Linnaeus

CARTHAMUS TINCTORIUS Linn. Sp. Pl. (1753) 830.

*Cnicus indicus* Rumph. Herb. Amb. 5: 215, t. 79, f. 2.

This species is not represented in our Amboina collections. It is found in scattered cultivation throughout the Malayan region, and Rumphius's figure is a fair representation of this common and well-known plant. *Cnicus indicus* was first reduced to *Carthamus tinctorius* by Linnaeus, in Stickman Herb. Amb. (1754) 21, Amoen. Acad. 4 (1759) 130, Syst. ed. 10 (1759) 1202, Sp. Pl. ed. 2 (1763) 1163, in which he has been followed by numerous other authors. This is unquestionably the correct disposition of the plant figured and described by Rumphius.

#### EMILIA Cassini

EMILIA SONCHIFOLIA (Linn.) DC. Prodr. 6 (1837) 302.

*Cacalia sonchifolia* Linn. Sp. Pl. (1753) 835.

*Sonchus amboinicus* Rumph. Herb. Amb. 5: 297, t. 103, f. 1.

AMBOINA, Batoe merah and Roemah tiga, *Robinson Pl. Rumph. Amb.* 420, July 20, 1913, in rocky and sandy soil, sea level to an altitude of about 15 meters, locally known as *buka manis*.

*Sonchus amboinicus* Rumph. was first reduced to *Cacalia sonchifolia* Linn. by Linnaeus, in Stickman Herb. Amb. (1754) 22, Amoen. Acad. 4 (1759) 131, Syst. ed. 10 (1759) 1204, Sp. Pl. ed. 2 (1763) 1169, in which he was generally followed by later authors until de Candolle transferred the species to *Emilia*. In the more recent literature it appears under *Emilia sonchifolia* DC., to which species it manifestly belongs.

#### CREPIS Linnaeus

CREPIS JAPONICA (Linn.) Benth. Fl. Hongk. (1861) 194.

*Prenanthes japonica* Linn. Mant. 1 (1767) 107.

*Olus scrofinum luteum* Rumph. Herb. Amb. 6: 35?

AMBOINA, Batoe mera, *Robinson Pl. Rumph. Amb.* 425, in ditches, altitude about 5 meters, July 20, 1913.

The description given by Rumphius is not sufficient to determine whether or not *Crepis japonica* is the plant intended by him. Hasskarl, *Neue Schlüssel* (1866) 158, has suggested that the description applies to some species of *Blumea*. The most

that can be definitely said regarding the Rumphian plant is that it was a small composite with yellow flowers and pappiferous achenes.

COMPOSITAE ? indet.

*Pilosella amboinica* Rumph. Herb. Amb. 6: 148.

The description is not sufficiently definite to warrant an identification of the plant. Hasskarl, *Neue Schlüssel* (1866) 177, thought that it might be a species of *Vernonia*. Two forms are described, with blue and with white flowers.

SPECIES DESCRIBED OR MENTIONED BY RUMPHIUS THAT CANNOT  
BE DEFINITELY REFERRED TO THEIR PROPER FAMILIES

Below are listed forty-six Rumphian species that cannot, from data at present available, be definitely referred to species described under the binominal system. Other species of somewhat similar doubtful status occur in the *Herbarium Amboinense*; but those that can be definitely referred to their proper families, genera, or probable species are discussed under the family, generic, or specific names, as the case may be, in the preceding systematic enumeration. It is very doubtful if many of the species listed below can be definitely determined, yet some of them can be certainly placed through field work carried on with special reference to the native names cited by Rumphius. From a systematic standpoint, however, these remaining doubtful Rumphian species are of no importance, as in no case has a binominal been based on any of the descriptions.

*Lignum moschatum* Rumph. Herb. Amb. 2: 41.

Under this name three kinds of wood are described. There is no description of the plants themselves. The only suggested reduction is that of Henschel, *Vita Rumph.* (1833) 146, who quotes Hamilton's opinion that at least one of the species is *Limonia acidissima* Linn. There is little or no authority for this reduction.

*Lignum tsjidji* Rumph. Herb. Amb. 2: 50.

Under this name a wood is described, which according to Rumphius came from Kwangtung, Cambodia, and Siam. The only suggested reduction is that made by Henschel, *Vita Rumph.* (1833) 146, who referred it to *Erythroxylum monogynum* Roxb. The range of Roxburgh's species, India and Ceylon, makes this reduction an impossible one.

*Pseudo-Santalum buroense* Rumph. Herb. Amb. 2: 55.

The description is sufficiently long and detailed, but I am unable to recognize the family to which the plant belongs. It was from Buru, there known as *roweyl*, *lowelle*, *rawelle*, and *bahamalohey*. An exploration of Buru will doubtless yield material by which its status can be determined. The other plant described in this chapter, *Pseudo-Santalum amboinense*, is *Osmoxylon umbelliferum* (Lam.) Merr.

*Jamtsja* Rumph. Herb. Amb. 3: 17.

The description is of the wood only. No data are given by which it can be identified.

*Metrosideros molucca femina* Rumph. Herb. Amb. 3: 25, t. 12.

I do not recognize the group to which this species belongs, although the description is good, as is also the figure. It is not represented in our Amboina collections. It has nothing to do with the two other forms described in this chapter, of which *Metrosideros molucca mas* is *Homalium foetidum* Benth., and *Metrosideros molucca fungosa* is apparently *Harpullia arborea* Radlk.

*Morfalla* Rumph. Herb. Amb. 3: 46.

A tree from the Sula Islands and Ceram, briefly described. From the digitate leaves Hasskarl, Neue Schlüssel (1866) 49, suggested that it might belong in the *Araliaceae*. The wood characters given by Rumphius make this reduction an impossible one. The flowers and fruits were unknown to Rumphius.

*Corius mas* Rumph. Herb. Amb. 3: 48, t. 27.

Hasskarl, Neue Schlüssel (1866) 49, quotes Teysmann's opinion that this may be a species of *Tanghinia*=*Cerbera*. This suggested reduction is certainly incorrect. The description is ample, and the figure presents a characteristic plant that should be easily recognized when once collected in Amboina. The native names cited are *ekora*, *ekore*, *caju kore*, *aykole*, and *kole*. It probably belongs in the *Apocynaceae*.

*Corius femina* Rumph. Herb. Amb. 3: 48.

This description, forming a part of the same chapter as *Corius mas*, applies to a quite different form. No suggestion has been made as to its status, and I do not recognize the group to which it belongs.

*Carbonaria mas* Rumph. Herb. Amb. 3: 52, t. 29.

A species of doubtful status. Thouars, in Lam. Encycl. Suppl. 3 (1813) 727, placed it under *Monimia*, where it certainly does

not belong. Hasskarl thought that it belonged in *Elaeocarpus*, while Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 50, placed it in *Aglaia*. If an *Aglaia*, which is very improbable, it belongs in the group of very few species with simple leaves. It cannot possibly be an *Elaeocarpus*. The figure represents a characteristic species, and it should be readily recognized when once collected in Amboina.

*Carbonaria femina* Rumph. Herb. Amb. 3: 53.

Hasskarl, Neue Schlüssel (1866) 50, has suggested that this may be a species of *Elaeocarpus*. There is nothing in the description to indicate that this reduction is the correct disposition of it.

*Carbonaria altera* Rumph. Herb. Amb. 3: 54.

Poiret, in Lam. Encycl. Suppl. 3 (1813) 727, thought that this might be some species of *Monimia*; it possibly belongs in the *Monimiaceae*. The native names cited are *hanet* and *ulit halewan*. The form described in the same chapter as *angustifolia* may belong in the same group as *Carbonaria altera*, whatever this may prove to be.

*Carbonaria altera litorea* Rumph. Herb. Amb. 3: 55.

Undeterminable from any data given by Rumphius. Possibly in the same group as *Carbonaria altera* Rumph.

*Mangium silvestre* Rumph. Herb. Amb. 3: 57, t. 31.

This has been considered by several authors as possibly representing a species of *Garcinia*; while Henschel, Vita Rumph. (1833) 154, placed it, with doubt, under *Mangifera laxiflora* Desr., where it certainly does not belong. The figure looks suspiciously like *Buchanania arborea* Blume, and the species may ultimately prove to be a *Buchanania*. The description of the fruits, however, does not at all apply to *Buchanania*, although the figure of them conforms well to those of this genus. It is possible that the description is a mixture of two different species. *Buchanania amboinensis* Miq., represented by *Rel. Robins.* 1776, 1777, should be compared with this.

*Lignum salis minus* Rumph. Herb. Amb. 3: 61.

Undeterminable from any data given by Rumphius. The description includes data regarding the habit of the plant, its leaves, and its wood, with no data regarding the flowers or the fruits. The native names cited are *aytassi*, *aytassi laun man*, and *aytassi kitsjil*.

*Arbor facum minor* Rumph. Herb. Amb. 3: 79, t. 51.

The description is very short, and the figure presents merely a leafy branch. Teysmann, quoted by Hasskarl, *Neue Schlüssel* (1866) 53, placed it in the *Sapotaceae*; but there is no warrant for this reduction.

*Cauda felis saxatilis* Rumph. Herb. Amb. 4: 84.

Undeterminable from the description alone. The species has nothing to do with the other forms described in this chapter, which pertain to the genus *Acalypha*.

*Kowackii* Rumph. Herb. Amb. 3: 91.

The description is very brief and applies chiefly to the vegetative characters of the plant. It is compared with *Pulasarius arbor*, described in the same chapter, which is *Lepiniopsis ternatensis* Valet. Its status is quite undeterminable.

*Arbor palorum nigra* Rumph. Herb. Amb. 3: 99, t. 66.

Unrecognizable, yet the figure represents a sufficiently characteristic plant, which should be readily determinable when once collected in Amboina.

*Vertifolia alba* Rumph. Herb. Amb. 3: 100.

Under *Vertifolia* Rumphius described two forms, *V. alba* and *V. rubra*, and figured one (t. 67), but did not indicate to which of the two the figure pertained. Our Amboina material shows conclusively that the figure belongs with *Vertifolia rubra*, which is *Perrottetia moluccana* (Blume) Loesen.; see p. 335. Hasskarl, apparently judging chiefly from the figure, thought that the species might belong in the *Euphorbiaceae*, while Teysmann, quoted by Hasskarl, *Neue Schlüssel* (1866) 55, definitely placed it in *Ehretia*, where it manifestly does not belong. *Vertifolia alba*, as described, is entirely different from *V. rubra*, and its status is undeterminable from any data at present available.

*Olus catappanicum* Rumph. Herb. Amb. 3: 182.

The status of this form is unrecognizable from the data given by Rumphius. The form very briefly described in the same chapter as *Olus catappanicum aliud* may be a *Barringtonia*.

*Tanarius major II* Rumph. Herb. Amb. 3: 192.

Undeterminable. The other form described in this chapter, and of which a figure is given, is *Schizomeria serrata* Hochr.

*Daun parawas* Rumph. Herb. Amb. 3: 203.

This was from Batavia, Java. It is probably some rutaceous plant, as suggested by Hasskarl, *Neue Schlüssel* (1866) 67, and is possibly a species of *Clausena*.

*Frutex carbonarius* I *albus* Rumph. Herb. Amb. 4: 126, t. 62.

The figure is rather characteristic, but might represent either a rubiaceous or a melastomataceous plant. Hasskarl, Neue Schlüssel (1866) 85, thought that it might be a species of *Marumia*; while Teysmann, as quoted by Hasskarl, placed it in the *Rubiaceae*. Its status cannot be definitely determined without more material from Amboina. The same name, without description, is given by Rumphius Herb. Amb. 3: 33.

*Frutex carbonarius* II *ruber* Rumph. Herb. Amb. 4: 126.

Perhaps a species of the *Melastomataceae*, as suggested by Hasskarl.

*Frutex carbonarius latifolius* Rumph. Herb. Amb. 4: 127.

Probably a species of the *Melastomataceae*, as suggested by Hasskarl.

*Frutex carbonarius asper* Rumph. Herb. Amb. 4: 127.

Probably a species of the *Melastomataceae*. Hasskarl, Neue Schlüssel (1866) 85, suggested that it might be a *Rhodamnia*, of the *Myrtaceae*.

*Frutex cerasiformis* Rumph. Herb. Amb. 4: 134, t. 68.

The figure represents a very characteristic species, which, however, I do not recognize. It has much the appearance of *Mimusops*, but the description does not conform to this genus.

*Limonellus litoreus* Rumph. Herb. Amb. 5: 24.

Undeterminable from the very brief description given by Rumphius.

*Sinapister* Rumph. Herb. Amb. 5: 73, t. 39, f. 1.

Undeterminable from data at present available. The drawing presents a leafy branch with mature and juvenile leaves, but no flowers or fruits. *Sinapister minor* described in the same chapter may or may not belong to the same genus, whatever this may prove to be.

*Funis butonicus major* Rumph. Herb. Amb. 5: 77, t. 41, f. 1.

Teysmann, quoted by Hasskarl, Neue Schlüssel (1866) 97, considered this to be a species of *Artabotrys*, but the special characters of *Artabotrys* are entirely wanting in both the description and the figure. I do not recognize the group to which the form figured belongs.

*Serratula amara parvifolia* Rumph. Herb. Amb. 5: 82.

Undeterminable from the description alone. Hasskarl, Neue Schlüssel (1866) 98, thought it was a scandent species of *Compositae*.



*Funis pinguis* Rumph. Herb. Amb. 5: 83.

Hasskarl thought this was a species of *Euphorbiaceae*. The description is not sufficiently definite to warrant a guess as to its identity.

*Blitum brasilianum* Rumph. Herb. Amb. 5: 233.

The brief discussion probably applies to a species of *Amaranthus*.

*Herba timoris* Rumph. Herb. Amb. 5: 462.

This small herb is not determinable from the brief description given by Rumphius. Hasskarl, *Neue Schlüssel* (1866) 147, placed it under *Callitriche verna* Linn., to which it cannot possibly be referred. Whatever else it may be, it cannot be a *Callitriche*.

*Aylilin* Rumph. Herb. Amb. 6: 34.

Undeterminable from the brief description given by Rumphius. It has nothing to do with the other plant described in this chapter, *Ophiocolla altera*, which is *Pseuderanthemum curtatum* Merr.

*Radix etter* Rumph. Herb. Amb. 7: 6, t. 4.

The description is inadequate, while the figure presents only a leafy branch and the roots. It may possibly be a species of *Connarus*. The plant was not from Amboina, but from Timor, Etter, and Kisser.

*Cortex acris* Rumph. Herb. Amb. 7: 9.

A tree, the flowers and fruits not described. The plant was from Ceram, there known as *sapela* and *appacau*, from which it may later be possible to determine the status of the plant described.

*Camean* Rumph. Herb. Amb. 7: 14, t. 8, f. 1.

This possibly belongs to the *Sapindaceae*; Teysmann, quoted by Hasskarl, *Neue Schlüssel* (1866) 186, placed it in *Evodia*, where it can scarcely belong. The tree was known in Amboina as *camean*.

*Ay assa* Rumph. Herb. Amb. 7: 20.

The description is suggestive of the *Sapindaceae*, but is scarcely definite enough to warrant a reduction of *Ay assa* at the present time. It has been referred to *Tetracera assa* DC., and in fact the specific name of that species seems to have been derived from *Ay assa* Rumph. It has, however, nothing whatever to do with *Tetracera*, the description not applying in any particular. It may prove to be an *Evodia*, of the *Rutaceae*.

*Lignum vinosum* Rumph. Herb. Amb. 7: 21.

The material that Rumphius had was from Rotte, an island southeast of Timor, the plant there being known as *caju larat* or *caju laro*. The only possible way of determining its status is through the native name and uses of the plant. The plant itself is not described, the data given by Rumphius applying chiefly to its uses.

*Pangel boaja* Rumph. Herb. Amb. 7: 22.

The material was from Bali. Undeterminable from the data given by Rumphius.

*Stercus squillarum* Rumph. Herb. Amb. 7: 22.

The status of this plant cannot be determined from the data given by Rumphius. A further exploration of Amboina may yield material by which it can be determined.

*Nanium calapparium* Rumph. Herb. Amb. 7: 55, t. 23, f. 2.

The figure presents only a leafy branch, the drawing being rather crude. There is nothing in the description by which the proper place of the plant described can be determined.

*Malum aruanum* Rumph. Herb. Amb. 7: 55, t. 24, f. 1.

This plant was from the Aru Islands, there known as *caim gulur*. It should be readily determined from a study of botanical material from that region, as from the description it must be a very characteristic species. The figure is very crude and presents only a branchlet with four alternate, oblong leaves. Hasskarl, Neue Schlüssel (1866) 191, suggested that it might be a *Hydnocarpus*.

*Caju gora aruana* Rumph. Herb. Amb. 7: 56, t. 24, f. 2.

There is no description, and the figure, which is very crude, presents only a leafy branchlet. Teysmann, quoted by Hasskarl, thought that it might be a species of *Uvaria*. There is no reason for considering that this suggested reduction is correct.

*Scrotum cussi* Rumph. Herb. Amb. 7: 59, t. 26, f. 2.

The status of this plant probably can be determined when it is once collected in Amboina, as the figure is fairly good, and the description is ample. Hasskarl, Neue Schlüssel (1866) 192, thought that it might belong in the *Apocynaceae*, a reduction that I consider to be an impossible one from the data given by Rumphius.

# SEQUENCE OF SPECIES IN RUMPHIUS'S HERBARIUM AMBOINENSE WITH THEIR BINOMIAL EQUIVALENTS

This list of Rumphian species is presented in order to make the present work more complete in itself. The list is arranged as the names appear in the Herbarium Amboinense, with the page and the plate references added, with also the binomial equivalent for each species as determined in the preceding systematic enumeration. The Rumphian names are in general those used by Hasskarl, but I have not thought it necessary to give the native names, which are often included by Rumphius in his designations.

## VOLUME I

- Palma indica major: calappa 1-25, t. 1-3=*Cocos nucifera* Linn. (*Palmae*).  
 Pinanga (incl. alba et nigra) 26, t. 4=*Areca catechu* Linn. (*Palmae*).  
 Pinanga calapparia 28=*Actinorhysis calapparia* H. Wendl. & Drude (*Palmae*).  
 Pinanga silvestris globosa 38, t. 5, f. 1=*Calypstrocalyx spicatus* Blume (*Palmae*).  
 Pinanga silvestris glandiformis I 38, t. 6=*Areca glandiformis* Lam. (*Palmae*).  
 Pinanga silvestris glandiformis II 39=*Pinanga* sp. (*Palmae*).  
 Pinanga silvestris oryzaeformis 40, t. 5, f. 2=*Pinanga globulifera* Merr. (*Palmae*).  
 Pinanga silvestris e Buro 41=*Mischophloeus paniculata* Scheff. (*Palmae*).  
 Pinanga silvestris saxatilis 42, t. 7=*Drymophloeus* sp. (*Palmae*).  
 Saribus 42, t. 8=*Livistona rotundifolia* Mart. (*Palmae*).  
 Licuala arbor 44, t. 9=*Licuala rumphii* Blume (*Palmae*).  
 Lontarus domestica 45, t. 10=*Borassus flabellifer* Linn. (*Palmae*).  
 Lontaro simile lignum 52=*Eusideroxylon zwageri* T. & B. (*Lauraceae*).  
 Lontarus silvestris I 53, t. 11=*Corypha utan* Lam. (*Palmae*).  
 Lontarus silvestris e Philipp. 54=*Corypha elata* Roxb. (*Palmae*).  
 Lontarus silvestris s. cabang 55=*Corypha gebanga* Blume (= *C. elata* Roxb.?) (*Palmae*).  
 Lontarus silvestris altera 56, t. 12=*Pholidocarpus ihur* Blume (*Palmae*).  
 Palma indica vinaria 57, t. 13=*Arenga pinnata* Merr. (*Palmae*).  
 Arbor tsjang 63=*Livistona* sp. (*Palmae*).  
 Saguaster major 64, t. 14=*Caryota rumphiana* Mart. (*Palmae*).  
 Saguaster minor 67, t. 15=*Saguaster olivaeformis* Mart. (*Palmae*).  
 Sargile 68=*Drymophloeus appendiculatus* Becc. (*Palmae*).  
 Nypa 69, t. 16=*Nipa fruticans* Wurm. (*Palmae*).  
 Sagus genuina 72, 75, t. 17, 18=*Metroxylon sagu* Rottb. (*Palmae*).  
 Sagus genuina II 75=*Metroxylon micranthum* Mart. (= ? *M. sagu* Rottb.) (*Palmae*).

- Sagus silvestris* 75=*Metroxylon silvestre* Mart. (= ? *M. sagu* Rottb.) (*Palmae*).
- Sagus longispinus* 75=*Metroxylon longispinum* Mart. (= ? *M. sagu* Rottb.) (*Palmae*).
- Sagus laevis* 76=*Metroxylon laevis* Mart. (= ? *M. sagu* Rottb.) (*Palmae*).
- Sagus filarius* 84, t. 19=*Pigafettia filifera* Merr. (*Palmae*).
- Wanga* 85=*Pigafettia elata* H. Wendl. (*Palmae*).
- Bissula* 85=*Livistona ? bissula* Mart. (*Palmae*).
- Olus calappoides* 86, t. 22, 23=*Cycas rumphii* Miq. (*Cycadaceae*).
- Olus calappoides* II e Celebes 87, t. 20, 21=*Cycas rumphii* Miq. (*Cycadaceae*).
- Arbor calappoides sinensis* 92, t. 24=*Cycas revoluta* Thunb. (*Cycadaceae*).
- Manga domestica* (incl. 1, 2, 3, 6) 93, t. 25, 26=*Mangifera indica* Linn. (*Anacardiaceae*).
- Manga domestica* 4 minor 94=*Mangifera minor* Blume (*Anacardiaceae*).
- Manga domestica* 5 simiarum 94=*Mangifera laurina* Blume (*Anacardiaceae*).
- Manga silvestris* 97, t. 27=*Mangifera utana* Ham. (*Anacardiaceae*).
- Manga silvestris* e Banda 98=*Mangifera tapia* Ham. (*Anacardiaceae*).
- Manga foetida* 98, t. 28=*Mangifera foetida* Lour. (*Anacardiaceae*).
- Manga foetida* II s. wani 99=*Mangifera caesia* Jack (*Anacardiaceae*).
- Durio* 99, t. 29=*Durio zibethinus* Murr. (*Bombacaceae*).
- Saccus arboreus major* 104, t. 30=*Artocarpus integra* (Thunb.) Merr. (*Moraceae*).
- Saccus arboreus minor* 107, t. 31=*Artocarpus champeden* Spreng. (*Moraceae*).
- Caju bandaa* 109 *Artocarpus* sp. (*Moraceae*).
- Soccus lanosus* 110, t. 32=*Artocarpus communis* Forst. (*Moraceae*).
- Soccus granosus* 112, t. 33=*Artocarpus communis* Forst. (*Moraceae*).
- Soccus silvestris* 114, t. 34=*Artocarpus elastica* Reinw. (*Moraceae*).
- Soccus silvestris* II 115=*Artocarpus* sp. (*Moraceae*).
- Prunum stellatum* 115, t. 35=*Averrhoa carambola* Linn. (*Oxalidaceae*).
- Blimbingum teres* 118, t. 36=*Averrhoa bilimbi* Linn. (*Oxalidaceae*).
- Jambosa domestica* 121, t. 37=*Eugenia malaccensis* Linn. (*Myrtaceae*).
- Jambosa domestica* II minor 122=*Eugenia malaccensis* Linn. (*Myrtaceae*).
- Jambosa domestica rosacea* 122=*Eugenia malaccensis* Linn. (*Myrtaceae*).
- Jambosa domestica calapparia* 122=*Eugenia malaccensis* Linn. (*Myrtaceae*).
- Jambosa rosacea* 123=*Eugenia jambos* Linn. (*Myrtaceae*).
- Jambosa nigra* 125, t. 38, f. 1=*Eugenia malaccensis* Linn. (*Myrtaceae*).
- Jambosa aquea* 126, t. 38, f. 2=*Eugenia aquea* Burm. f. (*Myrtaceae*).
- Jambosa silvestris alba* 127, t. 39=*Eugenia* sp. aff. *jambos* Linn. (*Myrtaceae*).
- Jambosa silvestris parvifolia* 129, vol. 2: t. 40 \*=*Eugenia javanica* Lam. (*Myrtaceae*).
- Jambosa silvestris ayer utan* 129=*Eugenia stipularis* Miq. (*Myrtaceae*).
- Jambosa ceramica* 130, t. 41=*Eugenia cumini* Merr. (*Myrtaceae*).
- Jambolana* 131, t. 42=*Eugenia cumini* Merr. (*Myrtaceae*).
- Mangostana* 132, t. 43=*Garcinia mangostana* Linn. (*Guttiferae*).
- Mangostana celebica* 134, t. 44=*Garcinia celebica* Linn. (*Guttiferae*).

\* Plate 40 is interchanged between Volumes I and II.

- Arbor mundo 135=*Garcinia dulcis* Kurz (*Guttiferae*).  
 Anona 135, t. 45=*Annona reticulata* Linn. (*Annonaceae*).  
 Khi 137=*Diospyros kaki* Linn. (*Ebenaceae*).  
 Anona tuberosa 138, t. 46=*Annona squamosa* Linn. (*Annonaceae*).  
 Cujavus domestica 140, t. 47=*Psidium guajava* Linn. (*Myrtaceae*).  
 Cujavus agrestis 142, t. 48=*Psidium guajava* Linn. (*Myrtaceae*).  
 Cujavus silvestris 143=*Psidium guajava* Linn. (*Myrtaceae*).  
 Cujavillus 145, t. 49=*Psidium cujavillus* Burm. f. (*Myrtaceae*).  
 Papaja mas et femina 145, t. 50, 51=*Carica papaya* Linn. (*Caricaceae*).  
 Papaja silvestris 149, t. 53, f. 1=*Polyscias nodosa* Seem. (*Araliaceae*).  
 Papaja silvestris minor 150, t. 53, f. 2=*Jagera serrata* Radlk. (*Sapindaceae*).  
 Papaja litorea 150, t. 52=*Schefflera* sp. (*Brassia littorea* Seem.!) (*Araliaceae*).  
 Lansium 151, t. 54=*Lansium domesticum* Correa (*Meliaceae*).  
 Lansium silvestre 153, t. 55=*Aglaia silvestris* Merr. (*Meliaceae*).  
 Lansium montanum 154, t. 56=*Aglaia* sp. (*Meliaceae*).  
 Cussambium 154, t. 57=*Schleichera oleosa* (Lour.) Merr. (*Sapindaceae*).  
 Linkeng 157=*Euphoria longana* Lam. (*Sapindaceae*).  
 Pomum draconum 157, t. 58=*Dracontomelum mangiferum* Blume (*Anacardiaceae*).  
 Pomum draconum silvestre 159, t. 59=*Dracontomelum silvestre* Blume (*Anacardiaceae*).  
 Condondum 161, t. 60=*Spondias dulcis* Forst. (*Anacardiaceae*).  
 Condondum malaccense 162, t. 61=*Spondias pinnata* Kurz (*Anacardiaceae*).  
 Cynomorium 163, t. 62=*Cynometra cauliflora* Linn. (*Leguminosae*).  
 Cynomorium silvestre 167, t. 63=*Cynometra ramiflora* Linn. (*Leguminosae*).  
 Sandoricum domesticum 167, t. 64=*Sandoricum koetjape* Merr. (*Meliaceae*).  
 Gajanus 170, t. 65=*Inocarpus edulis* Forst. (*Leguminosae*).  
 Atunus 171, t. 66=*Parinarium glaberrimum* Hassk. (*Rosaceae*).  
 Vidoricum domesticum 173=*Garcinia* sp. (*Guttiferae*).  
 Vidoricum silvestre 173, t. 67=*Meliaceae* indet.  
 Catappa domestica 175, t. 68=*Terminalia catappa* Linn. (*Combretaceae*).  
 Catappa silvestris litorea 173=*Terminalia catappa* Linn. (*Combretaceae*).  
 Catappa silvestris altera 175=*Terminalia catappa* Linn. (*Combretaceae*).  
 Cassuvium 177, t. 69=*Anacardium occidentale* Linn. (*Anacardiaceae*).  
 Cassuvium silvestre 179, t. 70=*Semecarpus cassuvium* Roxb. (*Anacardiaceae*).  
 Cassuvium silvestre p. p. (e Ternate) 180=*Semecarpus forstenii* Blume (*Anacardiaceae*).  
 Gnemon domestica mas 181, t. 72=*Gnetum gnemon* Linn. (*Gnetaceae*).  
 Gnemon domestica femina 181, t. 71=*Gnetum gnemon* Linn. (*Gnetaceae*).  
 Gnemon silvestris 183, t. 73=*Gnetum gnemon* Linn. (*Gnetaceae*).  
 Morunga (incl. mas et femina) 185, t. 74, 75=*Moringa oleifera* Lam. (*Moringaceae*).  
 Turia 188, t. 76=*Sesbania grandiflora* Pers. (*Leguminosae*).  
 Turia minor 190, t. 77=*Sesbania grandiflora* Pers. (*Leguminosae*).  
 Oius album domesticum 191, t. 78=*Pisonia alba* Span. (*Nyctaginaceae*).  
 Oius album insulare 193, t. 79, f. 1=*Pisonia grandis* R. Br. (*Nyctaginaceae*).

- Sajor volubilis 194, t. 79, f. 2 = *Pluckenetia volubilis* Sm. (*Euphorbiaceae*).  
 Eriophorus javana 194, t. 80 = *Ceiba pentandra* Gaertn. (*Bombacaceae*).  
 Bilacus 197, t. 81 = *Aegle marmelos* Correa (*Rutaceae*).  
 Bilacus taurinus 199 = *Aegle marmelos* Correa (*Rutaceae*).  
 Bilacus amboinensis silvestris 200, t. 82 = ? (sub *Aegle*, *Rutaceae*).

## VOLUME II

- Caryophyllum 1, t. 1 = *Eugenia caryophyllata* Thunb. (*Myrtaceae*).  
 Caryophyllum regium 10, t. 2 = *Eugenia caryophyllata* Thunb. (*Myrtaceae*).  
 Caryophyllum silvestre 12, t. 3 = *Eugenia caryophyllata* Thunb. (*Myrtaceae*).  
 Nux myristica 14, t. 4 = *Myristica fragrans* Houtt. (*Myristicaceae*).  
 Nux myristica mas 24, t. 5 = *Myristica fatua* Houtt. (*Myristicaceae*).  
 Palala secunda 26, t. 6 = *Horsfieldia sylvestris* Warb. (*Myristicaceae*).  
 Palala tertia 27, t. 7 = *Horsfieldia* sp. (*Myristicaceae*).  
 Palala quarta 27, t. 8 = *Horsfieldia canariformis* Merr. (*Myristicaceae*).  
 Palala quinta 28, t. 9 = *Gymnacranthera zippeliana* Warb. (*Myristicaceae*).  
 Palala sexta 28 = *Knema tomentella* Warb. (*Myristicaceae*).  
 Agallochum s. calambac 29 = *Aquilaria agallocha* Roxb. (*Thymelaeaceae*).  
 Agallochum secundarium coinamense 34 = *Aquilaria malaccensis* Lam. (*Thymelaeaceae*).  
 Agallochum secundarium malaicense 35, t. 10 = *Aquilaria malaccensis* Lam. (*Thymelaeaceae*).  
 Agallochum spurium 40 = *Gonystylus bancanus* Baill. (*Gonystylaceae*).  
 Agallochum spurium album 40 = ? (sub *Gonystylus*, *Gonystylaceae*).  
 Agallochum spurium III 41 = *Excoecaria agallocha* Linn. (*Euphorbiaceae*).  
 Lignum moschatum 41 = ?  
 Sandalum 42, t. 11 = *Santalum album* Linn. (*Santalaceae*).  
 Sandalum rubrum 47 = *Pterocarpus santalinus* Linn. (*Leguminosae*).  
 Lignum tsjidji 50 = ?  
 Pseudo-sandalum amboinense 54, t. 12 = *Osmoxylon umbelliferum* Merr. (*Araliaceae*).  
 Pseudo-sandalum buronense 55 = ?  
 Lignum papuanum 57 = ? *Altingia excelsa* Noronha (*Hamamelidaceae*).  
 Lignum papuanum II 58 = ? (sub *Altingia excelsa* Noronha).  
 Lignum papuanum III 58 = ?  
 Caju galedupa 59, t. 13 = *Sindora galedupa* Prain (*Leguminosae*).  
 Cortex oninius 62 = *Massoia aromatica* Becc. (*Lauraceae*).  
 Cortex oninius II 62 = ? *Massoia aromatica* Becc. (*Lauraceae*).  
 Cortex caryophylloides albus 65, t. 14 = *Cinnamomum culilawan* Blume (*Lauraceae*).  
 Cortex caryophylloides ruber 66 = *Cinnamomum culilawan* Blume var. *rubrum* Blume (*Lauraceae*).  
 Culitlawan ex Papuanis insulis 66 = *Cinnamomum xanthoneurum* Blume (*Lauraceae*).  
 Sintoc 69 = *Cinnamomum javanicum* Blume (*Lauraceae*).  
 Lauraster amboinensis maxima 70, t. 15 = *Cryptocarya* sp. (*Lauraceae*).  
 Lauraster amboinensis minor 70 = ? *Cryptocarya* sp. (*Lauraceae*).  
 Arbor alba major 72, t. 16, 17, f. 1 = *Melaleuca leucadendra* Linn. (*Myrtaceae*).  
 Caju-kelam 74 = *Melaleuca leucadendra* Linn. (*Myrtaceae*).  
 Arbor koring 74 = ? *Dipterocarpus* sp. (*Dipterocarpaceae*).

- Arbor alba minor 76, t. 17, f. 2=*Melaleuca leucadendra* Linn. (*Myrtaceae*).  
 Myrtus amboinensis 77, t. 18=*Leptospermum flavescens* Sm. (*Myrtaceae*).  
 pigmentaria 79, t. 19=*Bixa orellana* Linn. (*Bixaceae*).  
 Alliaria 81, t. 20=*Dysoxylum euphlebiu* Merr. (*Meliaceae*).  
 Cassia fistula 83, t. 21=*Cassia fistula* Linn. (*Leguminosae*).  
 Canna fistula javanica 86=*Cassia javanica* Linn. (*Leguminosae*).  
 Cassia fistula silvestris 88, t. 22=*Cassia javanica* Linn. (*Leguminosae*).  
 Andawas 89=*Wrightia* sp. (*Apocynaceae*).  
 Bilalangk 89=? *Leguminosae*.  
 Ke ule 89=? *Leguminosae*.  
 Tamarindus 90, t. 23=*Tamarindus indica* Linn. (*Leguminosae*).  
 Tamarindus altera 93=*Dialium indum* Linn. (*Leguminosae*).  
 Malum granatum 94, t. 24, f. 1=*Punica granatum* Linn. (*Punicaceae*).  
 Limo decumanus 96, t. 24, f. 2=*Citrus maxima* Merr. (*Rutaceae*).  
 Malum citrium 99, t. 25=*Citrus* sp. (*Rutaceae*).  
 Limo tuberosus 101, t. 26, f. 1=*Citrus hystrix* DC. (*Rutaceae*).  
 Limo ventricosus 102, t. 26, f. 2=*Citrus* sp. (*Rutaceae*).  
 Limo unguentarius 103=*Citrus hystrix* DC. (*Rutaceae*).  
 Limo agrestis 104, t. 27=*Citrus hystrix* DC. (*Rutaceae*).  
 Limo taurinus 105=*Citrus bergamia* Risso (*Rutaceae*).  
 Limo ferus 106, t. 26, f. 3, t. 28=*Citrus obversa* Hassk. (*Rutaceae*).  
 Limonellus 107, t. 29=*Citrus aurantifolia* Swingle (*Rutaceae*).  
 Limonellus fructu acutissimo 108, t. 29, f. A=*Citrus* sp. (*Rutaceae*).  
 Limonellus aurarius 109, t. 30=*Citrus* sp. (*Rutaceae*).  
 Limonellus madurensis 110, t. 31=*Fortunella japonica* Swingle (*Rutaceae*).  
 Limonellus angulosus 110, t. 32=*Merope angulata* Swingle (*Rutaceae*).  
 Aurantium acidum I t. 33=*Citrus aurantium* Linn. (*Rutaceae*).  
 Aurantium acidum II 112=*Citrus aurantium* Linn. (*Rutaceae*).  
 Aurantium acidum III 112=*Citrus aurantium* Linn. (*Rutaceae*).  
 Aurantium sinense 113, t. 34=*Citrus nobilis* Lour. (*Rutaceae*).  
 Aurantium sinense II 113=*Citrus nobilis* Lour. (*Rutaceae*).  
 Aurantium verrucosum 115, t. 35=*Citrus* sp. (*Rutaceae*).  
 Aurantium verrucosum e Banda 116=*Citrus* sp. (*Rutaceae*).  
 Aurantium pumilum madurensis 116=*Citrus* sp. (*Rutaceae*).  
 Malum indicum 117, t. 36=*Zizyphus jujuba* Lam. (*Rhamnaceae*).  
 Vidara littorea 119, t. 37=*Ximenia americana* Linn. (*Olacaceae*).  
 Lignum colubrinum timorense 121, t. 38=*Strychnos muricata* Kostel. (*Loganiaceae*).  
 Radix deiparae 124, t. 39=*Gmelina villosa* Roxb. (*Verbenaceae*).  
 Radix deiparae spuria 125, Vol. 1: t. 40 \*=*Gmelina villosa* Roxb. (*Verbenaceae*).  
 Rex amaroris 129, t. 41=*Soulamea amara* Lam. (*Simarubaceae*).  
 Anisum moluccanum 132, t. 42=*Fagara avicennae* DC. (*Rutaceae*).  
 Anisifolium 133, t. 43=*Feronia limonia* Swingle (*Rutaceae*).  
 Saponaria 134=*Sapindus rarak* DC. (*Sapindaceae*).  
 Pharmacum sagueri 136, t. 44=*Garcinia picrorhiza* Miq. (*Guttiferae*).  
 Pharmacum limonicum 137, t. 44, f. B=*Garcinia picrorhiza* Miq. var. *limonorrhiza* Boerl. (*Guttiferae*).  
 Capraria 139=*Garuga abilo* Merr. (*Burseraceae*).  
 Songium 140, t. 45=*Dillenia elliptica* Thunb. (*Dilleniaceae*).

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\* Plate 40 is interchanged between Volumes I and II.

- Sangius mas et femina** 142, t. 46 = *Dillenia serrata* Thunb. (*Dilleniaceae*).  
**Canarium vulgare** 145, 146, t. 47 = *Canarium commune* Linn. (*Burseraceae*).  
**Canarium vulgare majus rotundum** 146, t. 47, f. E = *Canarium commune* Linn., var. (*Burseraceae*).  
**Canarium vulgare parvum oblongum** 146, t. 47, f. F = *Canarium commune* Linn., var. (*Burseraceae*).  
**Canarium vulgare parvum rotundum** 146, t. 47, f. G = *Canarium commune* Linn., var. (*Burseraceae*).  
**Canarium zephyrinum** 151, t. 48 = *Canarium zephyrinum* Blume (*Burseraceae*).  
**Arbor zeylanica** 153 = *Canarium zeylanicum* Blume (*Burseraceae*).  
**Canarium sinense I** 154 = *Canarium pimela* Koenig (*Burseraceae*).  
**Canarium sinense II** 154 = *Canarium album* Räusch (*Burseraceae*).  
**Canarium sinense III** 154 = *Pimela caryophyllacea* Blume = *Canarium* sp. (*Burseraceae*).  
**Canarium silvestre II** 155, t. 49 = *Canarium sylvestre* Gaertn. (*Burseraceae*).  
**Canarium odoriferum leve** 156, t. 50 = *Canarium balsamiferum* Willd. (*Burseraceae*).  
**Canarium odoriferum leve, var.** 156 = *Canarium* sp. (*Canariopsis paucijuga* Miq.) (*Burseraceae*).  
**Canarium odoriferum hirsutum** 157, t. 51 = *Canarium hirsutum* Willd. (*Burseraceae*).  
**Dammara nigra** 160, t. 52 = *Canarium acutifolium* Merr. (*Burseraceae*).  
**Dammara nigra II femina** 161 = *Canarium* sp. (*Burseraceae*).  
**Dammara nigra legitima** 162, t. 53 = *Canarium legitimum* Blume (*Burseraceae*).  
**Nanarium minimum s. oleosum** 162, t. 54 = *Canarium oleosum* Engl. (*Burseraceae*).  
**Canarium decumanum** 166, t. 55 = *Canarium decumanum* Gaertn. (*Burseraceae*).  
**Dammara selanica mas** 168, t. 56 = *Shorea selanica* Blume (*Dipterocarpaceae*).  
**Dammara selanica femina** 169 = *Shorea selanica* Blume var. *latifolia* Blume (*Dipterocarpaceae*).  
**Dammara leucomelaena** 172 = ?  
**Dammara alba** 174, t. 57 = *Agathis alba* Foxw. (*Pinaceae*).  
**Dammara alba mas** 174 = *Agathis alba* Foxw. (*Pinaceae*).  
**Dammara alba femina** 175 = *Agathis alba* Foxw. (*Pinaceae*).  
**Dammara alba regia** 178 = *Agathis alba* Foxw. (*Pinaceae*).  
**Dammara celebica** 179 = *Agathis alba* Foxw. (*Pinaceae*).  
**Camirium** 180, t. 58 = *Aleurites moluccana* Willd. (*Euphorbiaceae*).  
**Pangium** 182, t. 59 = *Pangium edule* Reinw. (*Flacourtiaceae*).  
**Fructus musculiformis** 184, t. 60 = *Neuburgia musculiformis* Miq. (*Apocynaceae*).  
**Ampacus latifolia** 186, t. 61 = *Evodia latifolia* DC. (*Rutaceae*).  
**Ampacus angustifolia** 188, t. 62 = *Evodia amboinensis* Merr. (*Rutaceae*).  
**Ampacus litorea I** 188 = *Allophyllus timorensis* Blume (*Sapindaceae*).  
**Ampacus litorea angustifolia minor** 189 = *Allophyllus ternatus* Radlk. (*Sapindaceae*).  
**Flos cuspidum** 189, t. 63 = *Mimusops elengi* Linn. (*Sapotaceae*).  
**Tanjonus litorea** 193, t. 64 = *Mimusops parvifolia* R. Br. (*Sapotaceae*).



- Cananga 195, t. 65=*Canangium odoratum* Baill. (*Annonaceae*).  
 Cananga silvestris I 197, t. 66, f. 1=*Goniothalamus* sp. (*Annonaceae*).  
 Cananga silvestris II 198, t. 66, f. 2=*Polyalthia* sp. (*Uvaria ligularis* Lam.) (*Annonaceae*).  
 Cananga silvestris III latifolia 198=*Melodorum latifolium* Hook. f. & Th. (*Annonaceae*).  
 Sampacca 199, t. 67=*Michelia champaca* Linn. (*Magnoliaceae*).  
 Sampacca II parvifolia 200=*Michelia parvifolia* DC.=*Michelia champaca* Linn. (*Magnoliaceae*).  
 Sampacca III coerulea 200=*Michelia coerulea* DC.=*M. champaca* Linn. (*Magnoliaceae*).  
 Sampacca IV alba 200=*Michelia alba* DC. (*Magnoliaceae*).  
 Sampacca silvestris 202, t. 68=*Michelia tsiampaca* Linn. (*Magnoliaceae*).  
 Sampacca silvestris luteo-viridis 202=*Michelia tsiampaca* Linn. (*Magnoliaceae*).  
 Arbor violaria 203=? (sub *Talauma*, *Magnoliaceae*).  
 Sampacca montana 204, t. 69=*Talauma rumphii* Blume (*Magnoliaceae*).  
 Lingoum rubrum 205, t. 70=*Pterocarpus indicus* Willd. (*Leguminosae*).  
 Lingoum II album 206=*Pterocarpus indicus* Willd. (*Leguminosae*).  
 Lingoum III rubrum 209=*Pterocarpus indicus* Willd. (*Leguminosae*).  
 Lingoum saxatile 210=*Pterocarpus indicus* Willd. (*Leguminosae*).  
 Lingoum saxatile (e Ceram) 210=? *Pterocarpus papuanus* F. Muell. (*Leguminosae*).  
 Bintangor maritima 211, t. 71=*Calophyllum inophyllum* Linn. (*Guttiferae*).  
 Bintangor silvestris 216, t. 72=*Calophyllum soulattri* Burm. f. (*Guttiferae*).  
 Bintangor montana II 217=*Calophyllum soulattri* Burm. f. (*Guttiferae*).  
 Bintangor montana III 217=*Calophyllum* sp. (*Guttiferae*).  
 Novella 218, t. 73=*Hibiscus tiliaceus* Linn. (*Malvaceae*).  
 Novella repens 222, t. 73, f. A=*Hibiscus tiliaceus* Linn. (*Malvaceae*).  
 Novella rubra 223=*Hibiscus tiliaceus* Linn. (*Malvaceae*).  
 Novella litorea 224, t. 74=*Thespesia populnea* Corr. (*Malvaceae*).  
 Novella nigra 226, t. 75=*Cordia subcordata* Lam. (*Boraginaceae*).  
 Novella cinerea 227=? *Artocarpus* sp. (*Moraceae*).  
 Gelala litorea 230, t. 76=*Erythrina variegata* Linn. var. *orientalis* Merr. (*Leguminosae*).  
 Gelala litorea (e Java et e China) 232, 232=? *Erythrina variegata* Linn. var. *orientalis* Merr. (*Leguminosae*).  
 Gelala alba 234, t. 77=*Erythrina variegata* Linn. (*Leguminosae*).  
 Gelala alba (e Java) 234=*Erythrina variegata* Linn. (*Leguminosae*).  
 Gelala aquatica 235, t. 78=*Erythrina fusca* Lour. (*Leguminosae*).  
 Arbor excoecans 237, t. 79, 80=*Excoecaria agallocha* Linn. (*Euphorbiaceae*).  
 Arbor excoecans II variegata 239=*Excoecaria agallocha* Linn. (*Euphorbiaceae*).  
 Arbor lactaria 243, t. 81=*Cerbera manghas* Linn. (*Apocynaceae*).  
 Lignum scholare 246, t. 82=*Alstonia scholaris* (Linn.) R. Br. (*Apocynaceae*).  
 Arbor bindaus 248=?  
 Arbor pinguis 249, t. 83=*Pimeleodendron amboinicum* Hassk. (*Euphorbiaceae*).  
 Gutta cambodja 251=*Garcinia cambogia* Desr. (*Guttiferae*).

- Lactaria salubris* 255, t. 84=*Ochrosia oppositifolia* K. Sch. (*Apocynaceae*).  
*Arbor regis* 257, t. 85=*Endospermum moluccanum* Becc. (*Euphorbiaceae*).  
*Arbor vernicis* 259, t. 86=*Gluta benghas* Linn. (*Anacardiaceae*).  
*Arbor toxicaria* 263, t. 87=*Antiaris toxicaria* Lesch. (*Moraceae*).  
*Arbor toxicaria femina* 264=*Antiaris toxicaria* Lesch. (*Moraceae*).  
*Upas alterum* 264=*Strychnos* sp. (*Loganiaceae*).

## VOLUME III

- Ebenus* 1, t. 1=*Maba buxifolia* Pers. (*Ebenaceae*).  
*Ebenus e Madagascar* 6=? *Maba* sp. (*Ebenaceae*).  
*Ebenus molucca* 6, t. 2=*Diospyros maritima* Blume (*Ebenaceae*).  
*Ebenus alba* 8, t. 3=? *Diospyros* sp. (*Ebenaceae*).  
*Arbor nigra parvifolia* 10, 11, t. 4, f. 2, t. 5=*Polyalthia* sp. (*Annonaceae*).  
*Arbor nigra latifolia* 10=? *Polyalthia* sp. (*Annonaceae*).  
*Arbor nigra maculosa* 12, t. 4, f. 1=? *Polyalthia* sp. (*Annonaceae*).  
*Hebenaster* 13, t. 6=*Diospyros ebenum* Koen. (*Ebenaceae*).  
*Hebenaster amalyensis* 15=*Diospyros* sp. (*Ebenaceae*).  
*Metrosideros vera parvifolia* 16, t. 7=*Metrosideros vera* Roxb. (*Myrtaceae*).  
*Metrosideros vera latifolia* 16=*Metrosideros vera* Roxb. (*Myrtaceae*).  
*Jamtsia* 17=?  
*Metrosideros macassarensis* 19, t. 8=*Mimusops kauki* Linn. (*Sapotaceae*).  
*Nani hua* 21, t. 9=*Baccaurea nanihua* Merr. (*Euphorbiaceae*).  
*Metrosideros amboinensis mas* 21, t. 10=*Intsia bijuga* O. Kuntze (*Leguminosae*).  
*Metrosideros amboinensis femina* 22=? *Intsia* sp. (*Leguminosae*).  
*Metrosideros molucca mas* 25, t. 11=*Homalium foetidum* Benth. (*Flacourtiaceae*).  
*Metrosideros molucca femina* 25, t. 12=?  
*Metrosideros molucca fungosa* 25=*Harpullia arborea* (Blanco) Radlk. (*Sapindaceae*).  
*Metrosideros spuria I mas* 26, t. 13, f. A=*Artocarpus fretissii* T. & B. (*Moraceae*).  
*Metrosideros spuria II femina* 27, t. 13, f. B=*Artocarpus* sp. (*Moraceae*).  
*Coffassus mas* 28, t. 14, f. A=*Vitex cofassus* Reinw. (*Verbenaceae*).  
*Coffassus albus* (et femina) 28=*Vitex cofassus* Reinw. (*Verbenaceae*).  
*Cofassus citrina* 30, t. 15=*Alstonia subsessilis* Miq. (*Apocynaceae*).  
*Dabanus lapidea* 31, t. 17=*Pometia pinnata* Forst. (*Sapindaceae*).  
*Dabanus rubra* 32, t. 16=*Pometia pinnata* Forst. (*Sapindaceae*).  
*Dabanus mollis* 32=*Pometia pinnata* Forst. (*Sapindaceae*).  
*Jatus* 34, t. 18=*Tectona grandis* Linn. f. (*Verbenaceae*).  
*Samama* 36, t. 19=*Anthocephalus macrophyllus* Havil. (*Rubiaceae*).  
*Tittius rubra* 38, t. 20=*Vitex moluccana* Blume (*Verbenaceae*).  
*Tittius alba* 38=*Vitex moluccana* Blume (*Verbenaceae*).  
*Tittius litorea* 39=*Guettarda speciosa* Linn. (*Rubiaceae*).  
*Sicchius I mas* 40, t. 21=? *Palaquium* sp. (*Sapotaceae*).  
*Sicchius II femina* 41, t. 22=? *Sideroxylon* sp. (*Sapotaceae*).  
*Sicchius III intermedia* 41=?  
*Ulassium mas* 42, t. 23=*Adina fagifolia* Valetton (*Rubiaceae*).  
*Ulassium femina* 42=? *Adina* sp. (*Rubiaceae*).  
*Ulassium lapideum* 43=? *Adina* sp. (*Rubiaceae*).  
*Laharus lapideus* (incl. femina et mixta) 44, t. 24=*Neonauclea moluccana* Merr. (*Rubiaceae*).

- Nessatus 45, t. 25=*Neonauclea* sp. (*Rubiaceae*).  
 Morfalla 46=?  
 Lignum emanum 47, t. 26=*Podocarpus rumphii* Blume (*Taxaceae*).  
 Corius mas et femina 48, t. 27=? (cf. *Sapotaceae*).  
 Lignum murinum majus 50, t. 28=*Albizzia procera* Benth. (*Leguminosae*).  
 Lignum murinum minus 50=*Albizzia* sp. (*Leguminosae*).  
 Lignum murinum parvifolium 51=*Albizzia* sp. (*Leguminosae*).  
 Arbor pete 51=*Parkia speciosa* Hassk. (*Leguminosae*).  
 Caju ticcus leytimorensis 52=? *Albizzia procera* Benth. (*Leguminosae*).  
 Carbonaria mas 52, t. 29=? (cf. *Elaeocarpus*, *Elaeocarpaceae*).  
 Carbonaria femina 53=?  
 Frutex carbonarius 53=?  
 Carbonaria altera 54=?  
 Carbonaria litorea 55=?  
 Lignum corneum 55, t. 30=*Garcinia cornea* Linn. (*Guttiferae*).  
 Lignum corneum angustifolium 56=*Garcinia* sp. (*Guttiferae*).  
 Mangium silvestre 57, t. 31=? (cf. *Buchanania*, *Anacardiaceae*).  
 Folium acidum majus 58, t. 32=*Garcinia amboinensis* Spreng. (*Guttiferae*).  
 Folium acidum minus 60, t. 33=? *Garcinia ceramica* Boerl. (*Guttiferae*).  
 Lignum salis minus 61=?  
 Ulet 62, t. 34=*Taxotrophis ilicifolia* Vid. (*Moraceae*).  
 Lignum eurinum 63, t. 35=*Sideroxylon* sp. (*Sapotaceae*).  
 Sirifolia 64, t. 36=*Celtis philippensis* Blanco (*Ulmaceae*).  
 Sirifolia litorea 65, t. 37=*Celtis philippensis* Blanco (*Ulmaceae*).  
 Arupa alba 66, t. 38=*Payena leerii* Kurz (*Sapotaceae*).  
 Arupa rubra 66=? *Payena leerii* Kurz (*Sapotaceae*).  
 Surenus 67, t. 39=*Toona sureni* Merr. (*Meliaceae*).  
 Machilus I mas 68, t. 40, f. A=*Litsea* sp. (*Lauraceae*).  
 Machilus II femina 69, t. 40 f. B.=*Litsea* sp. (*Lauraceae*).  
 Machilus III media 70, t. 41=*Dehaasia media* Blume (*Lauraceae*).  
 Machilus IV minima 70, t. 42=*Machilus* sp. (*Lauraceae*).  
 Lignum leve latifolium 71, t. 43=*Litsea stickmanii* Merr. (*Lauraceae*).  
 Lignum leve angustifolium 71, t. 44=*Litsea* sp. (*Lauraceae*).  
 Lignum leve alterum 72, t. 45=*Litsea rumphii* F.-Vill. (*Lauraceae*).  
 Lignum equinum 73, t. 46=*Dolichandrone spathacea* (Linn. f.) K. Schum. (*Bignoniaceae*).  
 Arbor rubra I 74, t. 47=*Eugenia* sp. (*Myrtaceae*).  
 Arbor rubra I angustifolia minor 75, t. 48=*Eugenia* sp. (*Myrtaceae*).  
 Arbor rubra II 76=*Eugenia melastomifolia* Merr. (*Myrtaceae*).  
 Arbor rubra II saxatilis 76=*Eugenia* sp. (*Myrtaceae*).  
 Arbor rubra III 76=*Eugenia rumphii* Merr. (*Myrtaceae*).  
 Arbor rubra IV 77=*Eugenia* sp. (*Myrtaceae*).  
 Arbor facum major 77, t. 49=*Sideroxylon microcarpum* Burck (*Sapotaceae*).  
 Caju lape 78, t. 50=*Euonymus* sp. (*Celastraceae*).  
 Lignum salis 79, t. 51=?  
 Peticaria ferrea parvifolia 80, t. 52=? *Eugenia* sp. (*Myrtaceae*).  
 Peticaria ferrea latifolia 80=? *Eugenia* sp. (*Myrtaceae*).  
 Jambosa litorea 81, t. 53=*Eugenia subglauca* K. & V. (*Myrtaceae*).  
 Jambosa silvestris alba 81=*Eugenia* sp. (*Myrtaceae*).

- Arbor noctis 82, t. 54 = *Nauclea (Sarcocephalus) undulata* Roxb. (*Rubiaceae*).  
 Bancalus mas 84, t. 55, f. 2 = *Nauclea (Sarcocephalus) mitragyna* Merr. (*Rubiaceae*).  
 Bancalus media 84, t. 55, f. 1 = *Nauclea mitragyna* Merr. (*Rubiaceae*).  
 Quercus molucca 85, t. 56 = *Quercus molucca* Linn. (*Fagaceae*).  
 Quercus molucca II 85 = *Quercus* sp. (*Fagaceae*).  
 Casuarina litorea 86, t. 57 = *Casuarina equisetifolia* Linn. (*Casuarinaceae*).  
 Casuarina montana 87, t. 58 = *Casuarina rumphiana* Miq. (*Casuarinaceae*).  
 Casuarina celebica 87, t. 58, f. A = *Casuarina sumatrana* Miq. (*Casuarinaceae*).  
 Arbor nuda 89, t. 59 = *Antidesma stipulare* Blume (*Euphorbiaceae*).  
 Pulassarius arbor 90, t. 60 = *Lepiniopsis ternatensis* Val. (*Apocynaceae*).  
 Kowackii 91 = ?  
 Granatum litoreum latifolium 92, t. 62 = *Xylocarpus moluccensis* Roem. (*Meliaceae*).  
 Granatum litoreum II latissimum 92 = *Xylocarpus moluccensis* Roem. (*Meliaceae*).  
 Granatum litoreum III parvifolium 93, t. 61 = *Xylocarpus granatum* Koenig (*Meliaceae*).  
 Atunus litorea 95, t. 63 = *Heritiera litoralis* Dry. (*Sterculiaceae*).  
 Lignum clavatum 97, t. 64 = *Sapotaceae*.  
 Arbor palorum alba parvifolia 98, t. 65 = ? *Lepisanthes* sp. (*Sapindaceae*).  
 Arbor palorum alba latifolia 99, t. 65, f. A = *Mischocarpus fuscescens* Blume (*Sapindaceae*).  
 Arbor palorum nigra 99, t. 66 = ?  
 Vertifolia alba 100 = ?  
 Vertifolia rubra 100, t. 67 = *Perrottetia moluccana* Loesen. (*Celastraceae*).  
 Mangium celsum 102, t. 68 = *Bruguiera conjugata* Merr. (*Rhizophoraceae*).  
 Mangium minus 106, t. 69 (excl. fls. et fig. A, B.) = *Bruguiera conjugata* Merr. (*Rhizophoraceae*).  
 Mangium digitatum 107, t. 70 = *Bruguiera sexangula* Poir. (*Rhizophoraceae*).  
 Mangium candelarium 108, t. 71, 72 = *Bruguiera candelaria* DC. (*Rhizophoraceae*).  
 Mangium caseolare album 111, t. 73 = *Sonneratia alba* Sm. (*Sonneratiaceae*).  
 Mangium caseolare rubrum 112, t. 74, 75 = *Sonneratia caseolaris* Engl. (*Sonneratiaceae*).  
 Mangium album 115, t. 76 = *Avicennia officinalis* Linn. (*Verbenaceae*).  
 Mangium fruticans I corniculatum 117, t. 77 = *Aegiceras corniculatum* Blanco (*Myrsinaceae*).  
 Mangium fruticans II parvifolium 117 = *Aegiceras floridum* R. & S. (*Myrsinaceae*).  
 Mangium caryophylloides I 119, t. 78 = *Bruguiera cylindrica* Blume (*Rhizophoraceae*).  
 Mangium caryophylloides II parvifolium 119 = *Ceriops tagal* C. B. Rob. (*Rhizophoraceae*).  
 Mangium caryophylloides III latifolium 119 = *Ceriops tagal* C. B. Rob. (*Rhizophoraceae*).  
 Mangium ferreum mas 120, t. 79 = *Pemphis acidula* Forst. (*Lythraceae*).

- Mangium ferreum mas* 120, t. 79, fig. A, B=*Aegiceras floridum* R. & S. (*Myrsinaceae*).  
*Mangium ferreum femina* 120=? *Aegiceras floridum* R. & S. (*Myrsinaceae*).  
*Arbor versicolor* 122, t. 80=*Eucalyptus deglupta* Blume (*Myrtaceae*).  
*Arbor versicolor s. Caju Sarassa*=*Eucalyptus sarassa* Blume=? *E. deglupta* Blume (*Myrtaceae*).  
*Mangium montanum* 123, t. 81=*Acacia mangium* Willd. (*Leguminosae*).  
*Umbraculum maris ceramense* 124, t. 82=*Aegiceras corniculatum* Blanco (*Myrsinaceae*).  
*Umbraculum maris amboinense* 124=*Aegiceras corniculatum* Blanco (*Myrsinaceae*).  
*Mangium floridum* 125, t. 83=*Aegiceras floridum* R. & S. (*Myrsinaceae*).  
*Mangium porcellanicum* 126, t. 84=*Pemphis acidula* Forst. (*Lythraceae*).  
*Surenus alba* 126=*Toona sureni* Merr. (*Meliaceae*).  
*Surenus rubra* 126=*Toona sureni* Merr. (*Meliaceae*).  
*Varinga latifolia* 127, t. 84 bis=*Ficus altissima* Blume (*Moraceae*).  
*Varinga repens* 134, t. 85=*Ficus* sp. aff. *calophylla* Blume (*Moraceae*).  
*Varinga supa* 135, t. 86=? *Ficus forstenii* Miq. (*Moraceae*).  
*Varinga pelal* 135=? *Ficus forstenii* Miq. (*Moraceae*).  
*Grossularia domestica* 136, t. 87, 88=*Ficus trematocarpa* Miq. (*Moraceae*).  
*Grossularia domestica longifolia* 136=*Ficus* sp. (*Moraceae*).  
*Grossularia domestica parvifolia* 136=*Ficus* sp. (*Moraceae*).  
*Varinga funicularis* 137=*Ficus* sp. (*Moraceae*).  
*Varinga nounouck* 137=*Ficus* sp. (*Moraceae*).  
*Grossularia silvestris* 138, t. 89=*Ficus* sp. (*Moraceae*).  
*Varinga parvifolia alta* 139, t. 90=*Ficus benjamina* Linn. (*Moraceae*).  
*Varinga parvifolia humilis* 140=? *Ficus benjamina* Linn. (*Moraceae*).  
*Arbor eusanda* 141=*Ficus* sp. (*Moraceae*).  
*Arbor conciliorum* 142, t. 91, 92=*Ficus rumphii* Blume (*Moraceae*).  
*Caprificus amboinensis esculenta latifolia* 145, t. 93=*Ficus racemifera* Roxb. (*Moraceae*).  
*Caprificus amboinensis esculenta angustifolia* 146=*Ficus* sp. (*Moraceae*).  
*Caprificus amboinensis esculenta silvestris* 148=*Ficus* sp. (*Moraceae*).  
*Caprificus s. sycomorus chartaria* 149=*Ficus* sp. (*Moraceae*).  
*Caprificus aspera latifolia* 150, t. 94=*Ficus wassa* Roxb. (*Moraceae*).  
*Caprificus aspera II angustifolia* 151=*Ficus wassa* Roxb. (*Moraceae*).  
*Caprificus aspera III glabra* 151=*Ficus moseleyana* King (*Moraceae*).  
*Caprificus viridis major* 152, t. 95=*Ficus conora* King (*Moraceae*).  
*Caprificus viridis minor* 152=*Ficus adenosperma* Miq. (*Moraceae*).  
*Ficus septica* 153, t. 96=*Ficus septica* Burm. f. (*Moraceae*).  
*Ficus septica silvestris* 153=*Ficus* sp. (*Moraceae*).  
*Ficus septica angustifolia* 154=*Ficus* sp. (*Moraceae*).  
*Arbor glutinosa* 155, t. 97=*Cordia myxa* Linn. (*Boraginaceae*).  
*Bancudus angustifolia* 157, t. 98=*Morinda bracteata* Roxb. (*Rubiaceae*).  
*Bancudus latifolia* 158, t. 99=*Morinda citrifolia* Linn. (*Rubiaceae*).  
*Morinda latifolia* 159=*Morinda citrifolia* Linn. (*Rubiaceae*).  
*Arbor aluminosa* 160, t. 100=*Symplocos javanica* Kurz (*Symplocaceae*).  
*Ganitrus* 160, t. 101=? *Elaeocarpus amboinensis* Merr. (*Elaeocarpaceae*).  
*Ganitrum oblongum* 163, t. 102=? *Elaeocarpus oblongus* Gaertn. (*Elaeocarpaceae*).

- Ganitrum** 163=*Elaeocarpus* sp. (*Elaeocarpaceae*).  
**Lignum momentaneum** 164, t. 103=? *Elaeocarpus* sp. (*Elaeocarpaceae*).  
**Arbor rediviva** 165, t. 104=*Elaeocarpus rumphii* Merr. (*Elaeocarpaceae*).  
**Fructus bobae** 166, t. 105=*Stemonurus* sp. ( *Icacinaceae*).  
**Arbor spiculorum latifolia** 167=*Actinodaphne moluccana* Blume (*Lauraceae*).  
**Arbor spiculorum brevifolia** 167=? *Actinodaphne moluccana* Blume (*Lauraceae*).  
**Arbor spiculorum aeruginea** 167, t. 106=*Actinodaphne rumphii* Blume (*Lauraceae*).  
**Clompanus major** 168, t. 107=*Sterculia foetida* Linn. (*Sterculiaceae*).  
**Clompanus minor** 169, t. 107 bis=*Sterculia treubii* Hochr. (*Sterculiaceae*).  
**Clompanus ternatensis femina** 170=*Sterculia* sp. (*Sterculiaceae*).  
**Clompanus ternatensis mas** 170=*Sterculia* sp. (*Sterculiaceae*).  
**Clompanus silvestris** 171=? *Sterculia* sp. (*Sterculiaceae*).  
**Folium mappae** 172, t. 108=*Macaranga mappa* Muell.-Arg. (*Euphorbiaceae*).  
**Corallaria parvifolia** 173, t. 109=*Adenanthera pavonina* Linn. (*Leguminosae*).  
**Corallaria latifolia** 175, t. 101=*Ormosia calavensis* Azaola (*Leguminosae*).  
**Clypearia alba** 176, t. 111=*Albizzia falcata* Backer (*Leguminosae*).  
**Clypearia rubra** 176, t. 112=*Pithecolobium clypearia* Benth. (*Leguminosae*).  
**Clypearia rubra s. Sye II** 177=*Albizzia* sp. (*Leguminosae*).  
**Catti marus** 177, t. 113=*Kleinhovia hospita* Linn. (*Sterculiaceae*).  
**Butonica** 179, t. 114=*Barringtonia asiatica* Kurz (*Lecythidaceae*).  
**Butonica terrestris rubra** 181, t. 115=*Barringtonia racemosa* Blume (*Lecythidaceae*).  
**Butonica terrestris alba** 181, t. 116=*Barringtonia racemosa* Blume (*Lecythidaceae*).  
**Olus catappanicum** 182=?  
**Olus catappanicum aliud** 182=?  
**Malaparius** 183, t. 117=*Pongamia pinnata* Merr. (*Leguminosae*).  
**Malaparius e Nussanive** 184=*Pongamia pinnata* Merr. (*Leguminosae*).  
**Vidoricum silvestre I** 184=? *Diospyros* sp. (*Ebenaceae*).  
**Vidoricum silvestre II-IV** 184, t. 118=*Sapotaceae* indet.  
**Restiaria alba** 187, t. 119=*Commersonia bartramia* Merr. (*Sterculiaceae*).  
**Restiaria nigra** 188=*Columbia subobovata* Hochr. (*Tiliaceae*).  
**Perticaria III parvifolia** 189, t. 120=*Columbia subobovata* Hochr. (*Tiliaceae*).  
**Perticaria III latifolia** 189=*Columbia subobovata* Hochr. (*Tiliaceae*).  
**Tanarius minor alba** 190, t. 121=*Macaranga tanarius* Muell.-Arg. (*Euphorbiaceae*).  
**Tanarius minor rubra** 190=*Macaranga tanarius* Muell.-Arg. (*Euphorbiaceae*).  
**Tanarius major** 192, t. 122=*Schizomeria serrata* Hochr. (*Cunoniaceae*).  
**Tanarius major II** 192=?  
**Arbor ovigera femina** 193, t. 123=*Hernandia ovigera* Linn. (*Hernandiaceae*).  
**Arbor ovigera mas** 193=*Hernandia peltata* Meisn. (*Hernandiaceae*).  
**Lanius** 194, t. 124=*Samadera indica* Gaertn. (*Simarubaceae*).  
**Palacca** 195, t. 125=*Octomeles sumatrana* Miq. (*Datiscaceae*).

- Halecus litorea* 196, t. 126=*Mallotus tiliifolius* Muell.-Arg. (*Euphorbiaceae*).  
*Halecus terrestris vulgaris* 197, t. 127=*Macaranga involucrata* Baill. (*Euphorbiaceae*).  
*Halecus terrestris alba* 198, t. 127 bis=*Macaranga involucrata* Baill. (*Euphorbiaceae*).  
*Halecus rugosa* 198=*Macaranga hispida* Muell.-Arg. (*Euphorbiaceae*).  
*Clypearia maritima* 199=*Albizia retusa* Benth. (*Leguminosae*).  
*Solulus arbor* 200, t. 128=*Ormocarpum orientale* Merr. (*Leguminosae*).  
*Arbor radulifera* 201, t. 129=*Flindersia amboinensis* Poir. (*Rutaceae*).  
*Folium intinctus* 202=*Eugenia* sp. (*Myrtaceae*).  
 Daun parawas 203=?  
*Lignum muscosum* 203, t. 130=*Gordonia rumphii* Merr. (*Theaceae*).  
*Lignum muscosum parvifolium* 203=? *Gordonia rumphii* Merr. (*Theaceae*).  
*Bunius domestica* 204, t. 131=*Antidesma bunius* Spreng. (*Euphorbiaceae*).  
*Bunius agrestis* 204, t. 131, f. A=*Antidesma bunius* Spreng. (*Euphorbiaceae*).  
*Arbor coeli* 205, t. 132=*Ailanthus integrifolia* Lam. (*Simarubaceae*).  
*Aalius parvifolia* 207=*Breynia cernua* Muell.-Arg. (*Euphorbiaceae*).  
*Folium hircinum* 208, t. 133=*Premna nitida* K. Sch. (*Verbenaceae*).  
*Folium hircinum femina* 208=*Premna nitida* K. Sch. (*Verbenaceae*).  
*Gumira litorea (silvestris)* 209, t. 134=*Premna obtusifolia* R. Br. (*Verbenaceae*).  
*Cicadaria angustifolia* 210=? *Palaquium* sp. (*Sapotaceae*).  
*Cicadaria latifolia* 210, t. 135=? *Palaquium amboinense* Burck (*Sapotaceae*).  
*Cicadaria zeylanica* 210=?  
*Caryophyllaster albus* 211=*Decaspermum fruticosum* Forst. (*Myrtaceae*).  
*Caryophyllaster ruber* 211, t. 136=*Decaspermum fruticosum* Forst. (*Myrtaceae*).  
*Cortex papetarius* 212, t. 137=*Weinmannia fraxinea* Sm. (*Cunoniaceae*).  
*Ichthyoctonos litorea* 213, t. 138=*Sapium indicum* Willd. (*Euphorbiaceae*).  
*Ichthyoctonos montana* 214, t. 139=*Ternstroemia robinsonii* Merr. (*Theaceae*).  
*Ichthyoctonos litorea silvestris latifolia* 214=? *Ternstroemia robinsonii* Merr. (*Theaceae*).  
*Timonius* 216, t. 140=*Timonius sericeus* K. Sch. (*Rubiaceae*).  
*Folium urens latifolium* 217, t. 141=*Laportea amplissima* Miq. (*Urticaceae*).  
*Folium urens angustifolium* 217=*Laportea* sp. (*Urticaceae*).  
*Folium urens rubrum* 218=*Laportea* sp. (*Urticaceae*).  
*Phallus daemonum* 218=*Dictyophora phalloidea* Desv. (*Phallineae*).

## VOLUME IV

- Arundarbor tenuis* 1, t. 1 (incl. *alba*, *nigra*, *prava*, *picta*, *lineata*)=*Bambusa atra* Lindl. (*Gramineae*).  
*Arundarbor tenuis amahussana* 3=*Bambusa atra* Lindl. var. *amahussana* Merr. (*Gramineae*).  
*Arundarbor cratium* 5=*Schizostachyum brachycladum* Kurz (*Gramineae*).  
*Arundarbor spiculorum* 7=*Bambusa longinodis* Miq.=*Schizostachyum* sp. (*Gramineae*).

- Arundarbor vasaria 8=? *Bambusa vulgaris* Schrad. (Gramineae).  
 Arundarbor vasaria cho 10=? *Bambusa vulgaris* Schrad. (Gramineae).  
 Arundarbor aspera 11, t. 2=*Gigantochloa aspera* (Schultes) Kurz (Gramineae).  
 Arundarbor maxima 12=*Bambusa excelsa* Miq. (Gramineae).  
 Arundarbor spinosa 14, t. 3=*Bambusa spinosa* Roxb. (Gramineae).  
 Arundarbor fera flava 16, t. 4=*Bambusa vulgaris* Schrad. (Gramineae).  
 Arundarbor fera silvestris 16, 18=*Bambusa* sp. (Gramineae).  
 Arundarbor fera elegantissima 16=*Bambusa vulgaris* Schrad. var. *striata* Gamble (Gramineae).  
 Arundarbor ferae adf. 18=*Bambusa* sp. (Gramineae).  
 Arundarbor fera nigra 18=*Bambusa* sp. (Gramineae).  
 Arundarbor fera s. cha. 18=*Bambusa* sp. (Gramineae).  
 Canna palustris 20, t. 5=*Phragmites vulgaris* Trin. (Gramineae).  
 Arundo farcta I 21=*Miscanthus sinensis* Anders. (Gramineae).  
 Arundo farcta II 21, t. 6=*Miscanthus japonicus* Anders. (Gramineae).  
 Arundastrum 22, t. 7=*Donax canniiformis* K. Sch. (Marantaceae).  
 Flos festalis (incl. ruber simplex, plenus, albus simplex, flavus plenus) 24, t. 8=*Hibiscus rosa sinensis* Linn. (Malvaceae).  
 Flos meutan 26=*Paeonia meutan* Sims (Ranunculaceae).  
 Flos horarius 27, t. 9=*Hibiscus mutabilis* Linn. (Malvaceae).  
 Abutilon hirsutum 29, t. 10=*Abutilon hirtum* Sweet (Malvaceae).  
 Abutilon laeve 31, t. 11=*Abutilon indicum* Sweet (Malvaceae).  
 Abutilon montanum 32=*Sida cordifolia* Linn. (Malvaceae).  
 Abutilon litoreum 33=? *Abutilon indicum* Sweet (Malvaceae).  
 Gossypium 33, t. 12=*Gossypium indicum* Lam. (Malvaceae).  
 Gossypium fl. fusco-rubentibus 34=*Gossypium purpurascens* Poir. (Malvaceae).  
 Gossypium latifolium 37, t. 13=*Gossypium brasiliense* Macf. (Malvaceae).  
 Gossypium daemonis 38, t. 14=*Abroma fastuosa* Jacq. (Sterculiaceae).  
 Granum moschatum 38, t. 15=*Abelmoschus moschatus* Medik. (Malvaceae).  
 Granum moschatum agreste 38=*Abelmoschus mindanaensis* Warb. (Malvaceae).  
 Herba crinalium domestica 40, t. 16=*Hibiscus surattensis* Linn. (Malvaceae).  
 Herba crinalium silvestris 41=*Hibiscus surattensis* Linn. (Malvaceae).  
 Cyprus 42, t. 17=*Lawsonia inermis* Linn. (Lythraceae).  
 Lagondium vulgare 48, t. 18=*Vitex trifolia* Linn. (Verbenaceae).  
 Lagondium litoreum arborescens 50, t. 19=*Vitex negundo* Linn. (Verbenaceae).  
 Lagondium nigrum 52=? (sub *Vitex negundo* Linn., Verbenaceae).  
 Crista pavonis 53, t. 20=*Caesalpinia pulcherrima* Sw. (Leguminosae).  
 Soffera 55=*Cassia sophora* Linn. (Leguminosae).  
 Lignum sappan 56, t. 21=*Caesalpinia sappan* Linn. (Leguminosae).  
 Anticholerica 60, t. 22=*Sophora tomentosa* Linn. (Leguminosae).  
 Flos flavus 63, t. 23=*Cassia glauca* Lam. (Leguminosae).  
 Gajatus niger 64, t. 24=*Sesbania sesban* Merr. (Leguminosae).  
 Gajatus luteus 64=*Sesbania cannabina* Pers. (Leguminosae).  
 Codiaeum simplex 65, t. 25=*Codiaeum variegatum* Blume (Euphorbiaceae).  
 Codiaeum taeniosum 68, t. 26=*Codiaeum variegatum* var. *taeniosum* Muell.-Arg. (Euphorbiaceae).  
 Codiaeum silvestre 69, t. 27=*Codiaeum bractiferum* Roxb. (Euphorbiaceae).



- Gendarussa (incl. *alba*, *nigra*, *fusca*) 70, t. 28 = *Justicia gendarussa* Linn. (*Acanthaceae*).
- Gendarussa femina 72, t. 29 = *Rhinacanthus nasuta* (Linn.) Kurz (*Acanthaceae*).
- Involucrum cusi 73 = *Euphorbiaceae* indet.
- Folium bracteatum (incl. *vulgare*, *rubrum*, et *igneum*) 73, t. 30 = *Graptophyllum pictum* Griff. (*Acanthaceae*).
- Scutellaria prima 75, t. 31 = *Nothopanax scutellarium* Merr. (*Araliaceae*).
- Scutellaria secunda latifolia 76 = *Nothopanax tricochleatum* Miq. (*Araliaceae*).
- Scutellaria secunda angustifolia 76, t. 32 = *Nothopanax pinnatum* Miq. (*Araliaceae*).
- Scutellaria tertia 78, t. 33 = *Nothopanax fruticosum* Miq. (*Araliaceae*).
- Terminalis alba domestica 79, t. 34, f. 1 = *Taetsia fruticosa* Merr. (*Liliaceae*).
- Terminalis alba silvestris 80 = *Taetsia fruticosa* Merr. (*Liliaceae*).
- Terminalis rubra 80, t. 34, f. 2 = *Taetsia fruticosa* Merr. (*Liliaceae*).
- Terminalis angustifolia 81, t. 35 = *Pleomele angustifolia* N. E. Br. (*Liliaceae*).
- Cauda felis domestica 82, t. 36 = *Acalypha hispida* Burm. f. (*Euphorbiaceae*).
- Cauda felis agrestis rubra 84, t. 37, f. 1 = *Acalypha amentacea* Roxb. (*Euphorbiaceae*).
- Cauda felis agrestis alba 84, t. 37, f. 2 = *Acalypha amentacea* Roxb. (*Euphorbiaceae*).
- Cauda felis agrestis saxatilis 84 = ?
- Flos convolutus 85, t. 38 = *Plumiera acuminata* Ait. (*Apocynaceae*).
- Flos manilhanus 87, t. 39 = *Tabernaemontana divaricata* R. Br. (*Apocynaceae*).
- Ligularia lactea 88, t. 40 = *Euphorbia nerifolia* Linn. (*Euphorbiaceae*).
- Ligularia lactea e Java 88 = ? *Euphorbia nerifolia* Linn. (*Euphorbiaceae*).
- Ficus indica 89 = *Opuntia* sp. (*Cactaceae*).
- Ligularia minor 90 = *Euphorbia nerifolia* Linn. (*Euphorbiaceae*).
- Ricinus albus domesticus (incl. *agrestis* et *ruber*) 92, 97, t. 41 = *Ricinus communis* Linn. (*Euphorbiaceae*).
- Ricinus americanus 92 = *Jatropha curcas* Linn. (*Euphorbiaceae*).
- Granum moluccanum 98, t. 42 = *Croton tiglium* Linn. (*Euphorbiaceae*).
- Folium polypi mas (et femina) 101, t. 43 = *Boerlagiodendron palmatum* Harms (*Araliaceae*).
- Frutex aquosus mas 102, t. 44 = *Leea aculeata* Blume (*Vitaceae*).
- Frutex aquosus femina 103, t. 45 = *Leea aequata* Linn. (*Vitaceae*).
- Flamma sylvarum 105, t. 46 = *Ixora fulgens* Roxb. (*Rubiaceae*).
- Flamma sylvarum peregrina 107, t. 47 = *Ixora chinensis* Lam. (*Rubiaceae*).
- Petasites amboinensis 107, t. 48 = *Clerodendron rumphianum* De Vr. & Teysm. (*Verbenaceae*).
- Petasites agrestis 108, t. 49 = *Clerodendron speciosissimum* Lindl. (*Verbenaceae*).
- Caryophyllaster litoreus 110, t. 50 = *Dodonaea viscosa* Jacq. (*Sapindaceae*).
- Folium principissae latifolium 111, t. 51 = *Mussaenda reinwardtiana* Miq. (*Rubiaceae*).

- Folium principissae angustifolium* 111=*Mussaenda forsteniana* Miq. (*Rubiaceae*).
- Folium crocodili latifolium* (et *parvifolium*) 112, t. 52=*Desmodium umbellatum* DC. (*Leguminosae*).
- Frutex lintearius* 114, t. 53=*Broussonetia papyrifera* Vent. (*Moraceae*).
- Buglossum litoreum* 116, t. 54=*Scaevola frutescens* Krause (*Goodeniaceae*).
- Buglossum lanuginosum* 119, t. 55=*Tournefortia argentea* Linn. (*Boraginaceae*).
- Perlarius* (incl. *parvifolius*) I 120, t. 56=*Pipturus argenteus* Wedd. (*Urticaceae*).
- Perlarius latifolius* 121=*Robinsoniodendron ambiguum* Merr. (*Urticaceae*).
- Perlarius* II 122, t. 57=*Maesa tetrandra* A. DC. (*Myrsinaceae*).
- Perlarius* III 122=? *Maesa* sp. (*Myrsinaceae*).
- Mamanira* 123, t. 58=*Callicarpa cana* Linn. (*Verbenaceae*).
- Mamanira alba* 124, t. 59=*Callicarpa cuspidata* Roxb. (*Verbenaceae*).
- Frutex ceramicus* 124, t. 60=*Callicarpa* sp. (*Verbenaceae*).
- Cortex piscatorum* 125, t. 61=*Trema amboinensis* Blume, non auctt. (*T. virgata* Blume) (*Ulmaceae*).
- Frutex carbonarius* I *albus* 126, t. 62=?
- Frutex carbonarius* II *ruber*, *latifolius*, *asper* 126, 127=? (*Melastomataceae*).
- Folium politorium vulgare fruticosum* 128, t. 63=*Ficus ampelos* Burm. f. (*Moraceae*).
- Folium politorium arborescens* 128=*Ficus coronata* Reinw. (*Moraceae*).
- Folium politorium flagellare* 128=*Ficus ampelos* Burm. f. (*Moraceae*).
- Folium calcosum* 129, t. 64=*Melanolepis multiglandulosa* Rchb. f. & Zoll. (*Euphorbiaceae*).
- Frutex excoecans* 130, t. 65=*Homalanthus populneus* Pax (*Euphorbiaceae*).
- Cortex saponarius* 131, t. 66=*Albizzia saponaria* Blume (*Leguminosae*).
- Capsicum silvestre* 133, t. 67=*Tabernaemontana capsicoides* Merr. (*Apocynaceae*).
- Frutex cerasiformis* 134, t. 68=?
- Pharmacum papetarium* 134, t. 69=*Astronia papetaria* Blume (*Melastomataceae*).
- Lignum aquatile* 135, t. 70=*Oreocnide rubescens* Miq. (*Urticaceae*).
- Fragarius ruber* 135, t. 71=*Otanthera cyanoides* Triana (*Melastomataceae*).
- Fragarius ruber grandifolius* 136=*Melastoma* sp. (*Melastomataceae*).
- Fragarius niger* 137, t. 72=*Melastoma polyanthum* Blume (*Melastomataceae*).
- Blimbingum silvestre* 138, t. 73=*Elaeocarpus oppositifolius* Miq. (*Elaeocarpaceae*).
- Pandanus verus* 139, t. 74=*Pandanus tectorius* Soland. (*Pandanaceae*).
- Pandanus spurius* 142, t. 75=*Pandanus robinsonii* Merr. (*Pandanaceae*).
- Pandanus humilis* 143, t. 76=*Pandanus polycephalus* Lam. (*Pandanaceae*).
- Pandanus montanus silvestris* 145=*Pandanus terrestris* Warb. (*Pandanaceae*).
- Pandanus silvestris terrestris* 145, t. 77=*Pandanus amboinensis* Warb. (*Pandanaceae*).
- Pandanus latifolius* 146, t. 78=*Pandanus hasskartii* Merr. (*Pandanaceae*).
- Pandanus moschatus* 147=*Pandanus tectorius* Soland. var. *moschatus* Merr. (*Pandanaceae*).
- Pandanus ceramicus* 149, t. 79=*Pandanus conoideus* Lam. (*Pandanaceae*).

- Folium baggea verum* 150=*Pandanus bagea* Miq. (*Pandanaceae*).  
*Folium baggea quoad t. 81*=*Pandanus tectorius* Soland. (*Pandanaceae*).  
*Folium baggea maritimum* 151, t. 80=*Pandanus dubius* Spreng. (*Pandanaceae*).  
*Pandanus repens* 152=*Pandanus repens* Miq. (*Pandanaceae*).  
*Pandanus funicularis* 153, t. 82=*Freycinetia funicularis* Merr. (*Pandanaceae*).  
*Pandanus caricosus* 154=*Scirpiodendron ghaeri* Merr. (*Cyperaceae*).

## VOLUME V

- Folium linguae* 1, t. 1=*Bauhinia lingua* DC. (*Leguminosae*).  
*Folium linguae litorea alba* 2=*Bauhinia* sp. (*Leguminosae*).  
*Funis viminalis* 3, t. 2=*Ventilago* sp. (*Rhamnaceae*).  
*Funis quadrifidus* 4, t. 3=*Petreaovitex multiflora* Merr. (*Verbenaceae*).  
*Faba marina* 5, t. 4=*Entada phaseoloides* Merr. (*Leguminosae*).  
*Parrana nigra* Rumph. 7=? *Entada* sp. (*Leguminosae*).  
*Parrana rubra* 9, t. 5=*Dioclea reflexa* Hook. f. (*Leguminosae*).  
*Lobus litoralis* 10, t. 6=*Mucuna gigantea* DC. (*Leguminosae*).  
*Parrana miniata* 10=*Mucuna miniata* Merr. (*Leguminosae*).  
*Funis gnemoniformis* 11, t. 7=*Gnetum gnemonoides* Brongn. (*Gnetaceae*).  
*Gnemon funicularis* 12, t. 8=*Gnetum indicum* Merr. (*Gnetaceae*).  
*Funis urens aspera* 13, t. 9=*Tetracera scandens* Merr. (*Dilleniaceae*).  
*Funis urens glabra* 13=*Tetracera boerlagei* Merr. (*Dilleniaceae*).  
*Funis papius latifolius* 14, t. 10=*Asclepiadaceae* indet.  
*Funis papius parvifolius* 15, t. 11=*Ichnocarpus* sp. (*Apocynaceae*).  
*Funis cratium* 16, t. 12=*Apocynaceae* indet.  
*Lacca lignum* 17, t. 13=*Dalbergia parviflora* Roxb. (*Leguminosae*).  
*Spina vaccarum* 21, t. 14=*Artabotrys suaveolens* Blume (*Annonaceae*).  
*Cudranus bimanus* 22, t. 15, f. 2=*Cudrania javanensis* Tréc. (*Moraceae*).  
*Cudranus amboinicus* 22, t. 15, f. 1=*Cudrania javanensis* Tréc. (*Moraceae*).  
*Limonellus litoreus* 24=?  
*Cudranus amboinensis silvestris* 25, t. 16=*Cudrania javanensis* Tréc. (*Moraceae*).  
*Limonellus funicularis montanus* 25=*Pisonia aculeata* Linn. (*Nyctagiaceae*).  
*Camunium vulgare* 26, t. 17=*Murraya paniculata* Jack (*Rutaceae*).  
*Camunium javanicum* 27=*Murraya paniculata* Jack (*Rutaceae*).  
*Camunium sinense* 28, t. 18, f. 1=*Aglaia odorata* Lour. (*Meliaceae*).  
*Camunium japonense* 29, t. 18, f. 2=*Murraya paniculata* Jack (*Rutaceae*).  
*Cortex consolidans* 30, t. 19=*Parameria barbata* K. Sch. (*Apocynaceae*).  
*Pulassarium* 32, t. 20=*Alyxia laurina* Gaudich. (*Apocynaceae*).  
*Pulassarium spurium* 33=? *Apocynaceae* indet. (sub *Alyxia*).  
*Funis pulassarius* 34, t. 21=*Chilocarpus* sp. (*Apocynaceae*).  
*Tuba baccifera* 35, t. 22=*Anamirta cocculus* W. & A. (*Menispermaceae*).  
*Tuba radicum alba* 37, t. 23=*Derris elliptica* Benth. (*Leguminosae*).  
*Tuba radicum nigra* 38=? *Derris* sp. (*Leguminosae*).  
*Tuba flava* 38, t. 24=*Arcangelisia flava* Merr. (*Menispermaceae*).  
*Folium lunatum minus* 40, t. 25, f. 1=*Pericampylus glaucus* Merr. (*Menispermaceae*).  
*Tuba siliquosa* 41, t. 25, f. 2=*Derris trifoliata* Lour. (*Leguminosae*).  
*Pharmacum magnum vulgare* 42, t. 26, f. 1=*Piper retrofractum* Vahl (*Piperaceae*).

- Pharmacum magnum parvifolium 42, t. 26, f. 2=*Piper* sp. (*Piperaceae*).  
 Pharmacum magnum marinum 42=*Piper* sp. (*Piperaceae*).  
 Gumi susu 43=? *Ficus* sp. (*Moraceae*).  
 Sirium decumanum 45, t. 27=*Piper decumanum* Linn. (*Piperaceae*).  
 Sirium decumanum album 45=*Piper reinwardtianum* C. DC. (*Piperaceae*).  
 Sirium arborescens tertium 46, t. 28, f. 1=*Piper arborescens* Roxb. (*Piperaceae*).  
 Sirium arborescens tertium alterum 48=*Piper* sp. (*Piperaceae*).  
 Piper caninum 49, t. 28, f. 2=*Piper caninum* Blume (*Piperaceae*).  
 Sirioides 49=*Strychnos barbata* A. W. Hill (*Loganiaceae*).  
 Sirioides alter 50, t. 29, f. 1=*Myxopyrum macrolobum* A. W. Hill (*Oleaceae*).  
 Flos pergulanus 51, t. 29, f. 2=*Vallisneria spiralis* L. (*Apocynaceae*).  
 Flos manore (incl. plenus) 52, t. 30=*Jasminum sambac* Ait. (*Oleaceae*).  
 Jasminum litoreum 54=? *Jasminum* sp. (*Oleaceae*).  
 Flos coeruleus 56, t. 31=*Clitoria ternatea* Linn. (*Leguminosae*).  
 Abrus frutex 57, t. 32=*Abrus precatorius* Linn. (*Leguminosae*).  
 Viscum amboinicum album 60, t. 33=*Loranthus rumphii* Merr. (*Loranthaceae*).  
 Viscum amboinicum rubrum 61=*Elytranthe amboinensis* Merr. (*Loranthaceae*).  
 Viscum amboinicum III 62=*Loranthus* sp. (*Loranthaceae*).  
 Funis uncatus latifolius 63, t. 34, f. 1=*Uncaria longifolia* Merr. (*Rubiaceae*).  
 Funis uncatus angustifolius 63, t. 34, f. 2=*Uncaria setiloba* Benth. (*Rubiaceae*).  
 Funis uncatus lanosus 65, t. 34, f. 3=*Uncaria cordata* Merr. (*Rubiaceae*).  
 Funis muraenarum mas 66, t. 35, f. 1=*Medinilla crispata* Blume (*Melastomataceae*).  
 Funis muraenarum femina 67, t. 35, f. 2=*Medinilla macrocarpa* Blume (*Melastomataceae*).  
 Funis muraenarum III 67=*Medinilla* sp. (*Melastomataceae*).  
 Aylaun nya femina 67=*Pipturus repandus* Wedd. (*Urticaceae*).  
 Funis muraenarum latifolius 68, t. 36=*Conocephalus amboinensis* Warb. (*Moraceae*).  
 Funis convolutus 69, t. 37, f. 1=*Derris heptaphylla* Merr. (*Leguminosae*).  
 Clompanus funicularis 70, t. 37, f. 2=*Connarus* sp. (*Connaraceae*).  
 Quis qualis 71, t. 38=*Quisqualis indica* Linn. (*Combretaceae*).  
 Sinapister 73, t. 39, f. 1=?  
 Sinapister minor 74=?  
 Amara litorea 74, t. 39, f. 2=*Colubrina asiatica* Rich. (*Rhamnaceae*).  
 Olus crudum minus 75, t. 40, f. 2=*Gymnema syringaeefolium* Boerl. (*Asclepiadaceae*).  
 Olus crudum majus 76, t. 40, f. 1=? *Gymnema* sp. (*Asclepiadaceae*).  
 Funis butonicus major 77, t. 41, f. 1=?  
 Funis butonicus minor 77, t. 41, f. 2=*Dichapetalum moluccanum* Merr. (*Dichapetalaceae*).  
 Funis musarius latifolius 78, t. 42=*Uvaria musaria* DC. (*Annonaceae*).  
 Funis musarius angustifolius 78=*Uvaria* sp. (*Annonaceae*).  
 Funis dentarius 79=*Uvaria* sp. (*Annonaceae*).  
 Funis dentarius niger 79=*Uvaria* sp. (*Annonaceae*).  
 Rudens silvaticus latifolius 80, t. 43, f. 1=*Ficus* sp. (*Moraceae*).

- Rudens silvaticus parvifolius* 80, t. 43, f. 2=*Ficus recurva* Blume (*Moraceae*).
- Rudens silvaticus rugosus* 80=*Ficus* sp. (*Moraceae*).
- Rudens silvaticus* IV 81=? *Ficus* sp. (*Moraceae*).
- Funis felleus* 82, t. 44, f. 1=*Tinospora rumphii* Boerl. (*Menispermaceae*).
- Serratula amara parvifolia* 82=*Compositae* indet.
- Funis quadrangularis* 83, t. 44, f. 2=*Cissus quadrangularis* Linn. (*Vitaceae*).
- Funis pinguis* 83=?
- Crusta arborum minor* 84, t. 45=*Ficus punctata* Thunb. (*Moraceae*).
- Crusta arborum II alba* 84=*Ficus* sp. (*Moraceae*).
- Crusta arborum III odorata* 85=*Ficus* sp. (*Moraceae*).
- Crusta arborum IV minima* 85=?
- Jasminum litoreum* 86, t. 46=*Clerodendron commersonii* Spreng. (*Verbenaceae*).
- Rubus moluccus parvifolius* 88, t. 47, f. 1=*Rubus fraxinifolius* Poir. (*Rosaceae*).
- Rubus moluccus latifolius* 88, t. 47, f. 2=*Rubus moluccanus* Linn. (*Rubiaceae*).
- Frutex globulorum femina* 89, t. 48=*Caesalpinia jayabo* Maza (*Leguminosae*).
- Frutex globulorum majorum* 92, t. 49, f. 1=*Caesalpinia crista* Linn. (*Leguminosae*).
- Nugae silvarum litoreae et terrestres* 94, t. 50=*Caesalpinia nuga* Ait. (*Leguminosae*).
- Nugae silvarum minimae* 95, t. 49, f. 2=*Acacia rugata* Ham. (*Leguminosae*).
- Palmijuncus calapparius* 97, t. 51=*Daemonorops calapparius* Blume (*Palmae*).
- Palmijuncus niger* 101, t. 52=*Daemonorops niger* Blume (*Palmae*).
- Palmijuncus albus* 102, t. 53=*Calamus albus* Pers. (*Palmae*).
- Palmijuncus albus graminosus* 104=*Calamus graminosus* Blume (*Palmae*).
- Palmijuncus verus* 105=*Calamus pisicarpus* Blume (*Palmae*).
- Palmijuncus verus angustifolius* 105, t. 54, f. 2=*Calamus rumphii* Blume (*Palmae*).
- Palmijuncus verus latifolius* 106, t. 54, f. 1=*Calamus pisicarpus* Blume (*Palmae*).
- Palmijuncus arakanicus* 107=*Calamus* sp. (*Palmae*).
- Palmijuncus palimbanicus* 107=*Daemonorops palembanicus* Blume (*Palmae*).
- Palmijuncus viminalis* 108, t. 55, f. 2=*Calamus viminalis* Willd. (*Palmae*).
- Palmijuncus viminalis e Burone* 109=*Calamus buroënsis* Mart. (*Palmae*).
- Palmijuncus viminalis s. ua huay* 109=*Calamus* sp. (*Palmae*).
- Palmijuncus equestris* 110, t. 56=*Calamus equestris* Willd. (*Palmae*).
- Palmijuncus equestris crassissimus* 111=*Calamus cawa* Blume (*Palmae*).
- Palmijuncus equestris s. rottang cawa* 112=*Calamus cawa* Blume (*Palmae*).
- Zalacca* 113, t. 57, f. 2=*Zalacca edulis* Reinw. (*Palmae*).
- Palmijuncus draco* 114, t. 58, f. 1, A-D.=*Daemonorops draco* Blume (*Palmae*).
- Palmijuncus draco e Bantam* 116=*Daemonorops ruber* Blume (*Palmae*).
- Palmijuncus acidus* 119, t. 58, f. 2, E=*Calamus acidus* Becc. (*Palmae*).
- Boeloe rottang* 119=? *Dinorchloa* sp. (*Gramineae*).

- Palmijuncus laevis* 120, t. 59, f. 1=*Flagellaria indica* Linn. (*Flagellariaceae*).
- Cantharifera* 121, t. 59, f. 2=*Nepenthes mirabilis* Merr. (*Nepenthaceae*).
- Cantharifera alba* 122=*Nepenthes maxima* Reinw. (*Nepenthaceae*).
- Nugae silvarum silvestris* 124=*Fagara torva* Engl. (*Rutaceae*).
- Musa domestica* 125-133, t. 60=*Musa paradisiaca* Linn. (*Musaceae*).
- Musa uranoscopus* 137, t. 61, f. 2=*Musa paradisiaca* Linn. var. (*Musaceae*).
- Musa alphurica* 138, t. 61, f. 3=*Musa paradisiaca* Linn., var. (*Musaceae*).
- Musa simiarum* 138, t. 61, f. 1=*Musa acuminata* Colla (*Musaceae*).
- Musa silvestris* 139=*Musa textilis* Née (*Musaceae*).
- Musa silvestris mindanauensis* 139=*Musa textilis* Née (*Musaceae*).
- Musa silvestris amboinensis* 139=*Musa* sp. (*Musaceae*).
- Folium mensarium album* 140, t. 62, f. 2=*Heliconia bihai* Linn. (*Musaceae*).
- Folium mensarium nigrum* 140=*Heliconia bihai* Linn. (*Musaceae*).
- Folium mensarium rubrum* 141=*Cominsia rubra* Val. (*Marantaceae*).
- Folium buccinatum album* 142=*Phacelophrynium robinsonii* Val. (*Marantaceae*).
- Folium buccinatum asperum* 142, t. 62, f. 1=*Cominsia gigantea* K. Sch. (*Marantaceae*).
- Galanga major* 143, t. 63=*Alpinia galanga* Sw. (*Zingiberaceae*).
- Galanga minor* 144, t. 63, f. D=? *Alpinia galanga* Sw. (*Zingiberaceae*).
- Lampujum majus domesticum* 148, t. 64, f. 1=*Zingiber zerumbet* Sm. (*Zingiberaceae*).
- Lampujum zerumbed silvestre* 148=*Zingiber zerumbet* Sm. (*Zingiberaceae*).
- Lampujum zerumbed minus* 148=*Zingiber zerumbet* Sm., var. *amaricans* Val. (*Zingiberaceae*).
- Lampujum silvestre minus* 150, t. 64, f. 2=*Globba marantina* Linn. (*Zingiberaceae*).
- Lampujum silvestre amarum* 151=*Zingiber zerumbet* Sm. (*Zingiberaceae*).
- Cardamomum minus* 152, t. 65, f. 1=*Amomum cardamomum* Willd. (*Zingiberaceae*).
- Cardamomum verum* 153=*Elettaria cardamomum* Maton (*Zingiberaceae*).
- Cardamomum majus* 153=*Amomum maximum* Roxb. (*Zingiberaceae*).
- Bangleum* 154, t. 65, f. 2=*Zingiber cassumunar* Roxb. (*Zingiberaceae*).
- Zingiber majus album* 156, t. 66, f. 1=*Zingiber officinale* Rosc. (*Zingiberaceae*).
- Zingiber majus rubrum* 156=? *Zingiber officinale* Rosc. (*Zingiberaceae*).
- Zingiber minus* 161, t. 66, f. 2=*Zingiber officinale* Rosc., var. *minor* Val. (*Zingiberaceae*).
- Curcuma domestica major* 162, t. 67=*Curcuma longa* Linn. (*Zingiberaceae*).
- Curcuma domestica minor* 164=*Curcuma longa* Koenig (*Zingiberaceae*).
- Curcuma agrestis* 164=*Curcuma petiolata* Roxb. (*Zingiberaceae*).
- Zerumbed majus* 168=*Curcuma zedoaria* Rosc. (*Zingiberaceae*); t. 68=? *Curcuma viridiflora* Roxb.
- Zerumbed album, giring, et frigidum* 169=*Curcuma* spp. (*Zingiberaceae*).
- Zerumbed nigrum* Rumph. 169=*Curcuma aeruginosa* Roxb. (*Zingiberaceae*).
- Zerumbed manga* Rumph. 169=*Curcuma* sp. (*Zingiberaceae*).

- Zerumbed claviculatum* 172, t. 69, f. 1=*Kaempferia pandurata* Roxb. (Zingiberaceae).  
*Soncorus* 173, t. 69, f. 2=*Kaempferia galanga* Linn. (Zingiberaceae).  
*Gandasulium* 175, t. 69, f. 3=*Hedychium chrysoleucum* Hook. f. (Zingiberaceae).  
*Galanga malaccensis* 176, t. 71, f. 1=*Alpinia malaccensis* Rosc. (Zingiberaceae).  
*Cannacorus* 177, t. 71, f. 2=*Canna indica* Linn. (Cannaceae).  
*Acorum palustre* 178, t. 72, f. 1=*Acorus calamus* Linn. (Araceae).  
*Acorum terrestre* 180=*Acorus calamus* Linn. (Araceae).  
*Schoenanthemum amboinicum* 181, t. 72, f. 2=*Andropogon citratus* DC. (Gramineae).  
*Schoenanthemum alterum* 182=*Andropogon exaltatus* R. Br. (Gramineae).  
*Gladiolus odoratus indicus* 185, t. 73=*Dianella odorata* Blume (Liliaceae).  
*Arundo saccharifera* (incl. alba, fusca, nigra, et rottanga) 186, t. 74=*Saccharum officinarum* Linn. (Gramineae).  
*Ova pliscium* 191, t. 75, f. 1=*Saccharum officinarum* Linn., var. (Gramineae).  
*Lachryma jobi indica* 193, t. 75 f. 2=*Coix lachryma jobi* Linn. (Gramineae).  
*Sorghum s. Battari* 194, t. 75 bis, f. 1=*Andropogon sorghum* Brot. (Gramineae).  
*Oryza vulgaris* 196=*Oryza sativa* Linn. (Gramineae).  
*Oryza glutinosa* 201=*Oryza sativa* Linn. (Gramineae).  
*Panicum indicum* 202, t. 75 bis, f. 2=*Setaria italica* Beauv. (Gramineae).  
*Fruentum indicum* 202=*Zea mays* Linn. (Gramineae).  
*Panicum gramineum* 203, t. 76, f. 2=*Eleusine corocana* Gaertn. (Gramineae).  
*Sesamum indicum nigrum et album* 204, t. 76, f. 1=*Sesamum orientale* Linn. (Pedaliaceae).  
*Cannabis indica* 208, t. 77=*Cannabis sativa* Linn. (Ulmaceae).  
*Ganja sativa* 212, t. 78, f. 1=*Corchorus capsularis* Linn. (Tiliaceae).  
*Ganja agrestis* 213, t. 78, f. 2=*Corchorus olitorius* Linn. (Tiliaceae).  
*Ramium majus* 214, t. 79, f. 1=*Boehmeria nivea* Gaudich. (Urticaceae).  
*Cnicus indicus* 215, t. 79, f. 2=*Carthamus tinctorius* Linn. (Compositae).  
*Indicum* 220=*Indigofera tinctoria* Linn. (Leguminosae).  
*Indicum* 220, quoad t. 80=*Indigofera suffruticosa* Mill. (Leguminosae).  
*Indicum silvestre* 222=*Indigofera* sp. (Leguminosae).  
*Indicum silvestre e Madagascar* 223=*Indigofera* sp. (Leguminosae).  
*Indicum brasilianum* 224=*Indigofera* sp. (Leguminosae).  
*Indicum spurium* 224=*Indigofera* sp. (Leguminosae).  
*Tabacus* 225=*Nicotiana tabacum* Linn. (Solanaceae).  
*Anassa domestica* 227, t. 81=*Ananas comosus* Merr. (Bromeliaceae).  
*Anassa silvestris* 230=*Pandanus terrestris* Warb. (Pandanaceae).  
*Blitum indicum domesticum (album et maculosum)* 231, t. 82, f. 1=*Amaranthus viridis* Linn. (Amaranthaceae).  
*Blitum indicum II maculosum amboinicum* 231=*Amaranthus viridis* Linn. (Amaranthaceae).  
*Blitum indicum III rubrum* 232=*Amaranthus tricolor* Linn. (Amaranthaceae).

- Blitum indicum* IV terrestre 232, t. 82, f. 2=? *Amaranthus gangeticus* Linn. (*Amaranthaceae*).
- Blitum peruvianum* 232=*Chenopodium quinoa* Willd. (*Chenopodiaceae*).
- Blitum brasiliense* 233=?
- Blitum spinosum* 234, t. 83, f. 1=*Amaranthus spinosus* Linn. (*Amaranthaceae*).
- Blitum frutescens* 235, t. 83, f. 2=*Deeringia amaranthoides* Merr. (*Amaranthaceae*).
- Amarantus japonicus* 236, t. 84=*Celosia cristata* Linn. (*Amaranthaceae*).
- Amarantus vulgaris* 236=*Celosia cristata* Linn. (*Amaranthaceae*).
- Amarantus caudatus* 237=*Celosia argentea* Linn. (*Amaranthaceae*).
- Amarantus versicolor* 237=*Amaranthus tricolor* Linn. (*Amaranthaceae*).
- Trongum hortense* (incl. *fuscum* et *album*) 238, t. 85=*Solanum melongena* Linn. (*Solanaceae*).
- Trongum agreste spinosum* 240, t. 86, f. 1=*Solanum trongum* Poir. (*Solanaceae*).
- Trongum agreste album verum* 241=*Solanum album* Lour. (*Solanaceae*).
- Trongum agreste rubrum* 241, t. 86, f. 2=*Solanum album* Lour. (*Solanaceae*).
- Stramonium indicum* 242, t. 87, f. 1=*Datura fastuosa* Linn. var. *alba* C. B. Clarke (*Solanaceae*).
- Stramonium indicum* III rubra 243, t. 87, f. 2=*Datura fastuosa* Linn. (*Solanaceae*).
- Capsicum indicum* 247, t. 88, f. 1-4=*Capsicum frutescens* Linn. (*Solanaceae*).
- Mirabilis mexicana* 253, t. 89=*Mirabilis jalapa* Linn. (*Nyctaginaceae*).
- Lacca herba* 256, t. 90=*Impatiens balsamina* Linn. (*Balsaminaceae*).
- Matricaria sinensis* 259, t. 91, f. 1=*Chrysanthemum indicum* Linn. (*Compositae*).
- Artemisia latifolia* 261, t. 91, f. 2=*Artemisia vulgaris* Linn. (*Compositae*).
- Artemisia latifolia rubra* 261=? *Artemisia vulgaris* Linn. (*Compositae*).
- Basilicum indicum hortense* 263, t. 92, f. 1=*Ocimum basilicum* Linn. (*Labiatae*).
- Ocimum agreste* 265, t. 92, f. 2=*Ocimum sanctum* Linn. (*Labiatae*).
- Ozimum citratum indicum* 266, t. 93, f. 1=*Ocimum* sp. aff. *O. basilicum* Linn. (*Labiatae*).
- Mentha crispa* 167, t. 93, f. 2=*Mentha arvensis* Linn. (*Labiatae*).
- Portulaca indica* I, II 268=*Portulaca oleracea* Linn. (*Portulacaceae*).
- Portulaca indica* III, IV 268=*Portulaca quadrifida* Linn. (*Portulacaceae*).
- Portulaca indica* V, 268=? *Crithamum maritimum* Linn. (*Umbelliferae*).
- Levisticum indicum* 269, t. 93, f. 3=? *Antheriscus* sp. (*Umbelliferae*).
- Carum* 270=*Carum copticum* Benth. (*Umbelliferae*).
- Amudium* 270=*Carum copticum* Benth. (*Umbelliferae*).
- Mussl* 271=*Umbelliferae* indet.
- Sempervivum majus indicum* 271=*Aloe vera* Linn. (*Liliaceae*).
- Aloe americana* 272=*Agave cantala* Roxb. (*Amaryllidaceae*).
- Aloe americana parva* 273, t. 94=*Agave cantala* Roxb. (*Amaryllidaceae*).
- Planta anatis* 275, t. 95=*Kalanchoe laciniata* DC. (*Crassulaceae*).
- Oxys lutea indica* 277=*Oxalis repens* Thunb. (*Oxalidaceae*).
- Lapathum hortense* 277=*Rumex patens* Linn. (*Polygonaceae*).
- Crotalaria* I major 278, t. 96, f. 1=*Crotalaria retusa* Linn. (*Leguminosae*).
- Crotalaria* II minor 278=*Crotalaria quinquefolia* Linn. (*Leguminosae*).



- Crotalaria* III *agrestis* 279=*Crotalaria chinensis* Linn. (*Leguminosae*).  
*Lagansa alba* 280, t. 96, f. 3=*Polanisia viscosa* DC. (*Capparidaceae*).  
*Lagansa rubra* 280 t. 96, f. 2=*Gynandropsis pentaphylla* DC. (*Capparidaceae*).  
*Sinapi sinense album* 282=*Brassica juncea* Coss. (*Cruciferae*).  
*Sinapi sinense nigrum* 282=*Brassica juncea* Coss. (*Cruciferae*).  
*Sinapi indigenum* 282=*Nasturtium indicum* DC. (*Cruciferae*).  
*Gallinaria acutifolia* 283, t. 97, f. 1=*Cassia occidentalis* Linn. (*Leguminosae*).  
*Gallinaria rotundifolia* 283, t. 97, f. 2=*Cassia tora* Linn. (*Leguminosae*).  
*Amica nocturna* 285, t. 98=*Polianthes tuberosa* Linn. (*Amaryllidaceae*).  
*Flos susannae* 286, t. 99=*Platanthera susannae* Lindl. (*Orchidaceae*).  
*Maccabuhay* 287=*Tinospora* sp. (*Menispermaceae*) quoad nomen=? *Orchidaceae* indet. quoad descr.  
*Flos susannae minor* 287=*Habenaria rumphii* Lindl. (*Orchidaceae*).  
*Satyria* 287=*Orchidaceae* indet.  
*Flor inpius* 288, t. 100, f. 1=*Pentapetes phoenicea* Linn. (*Sterculiaceae*).  
*Flos globosus* 289, t. 100, f. 2=*Gomphrena globosa* Linn. (*Amaranthaceae*).  
*Majana* (incl. *alba* et *rubra*) 291, t. 101=*Coleus scutellaroides* Benth. (*Labiatae*).  
*Melissa lotoria* 292, t. 102, f. 1=*Pogostemon cablin* Benth. (*Labiatae*).  
*Marrubium album amboinicum* 294, t. 102, f. 2=*Coleus amboinicus* Lour. (*Labiatae*).  
*Marrubium album semisilvestre* 294=*Coleus* sp. (*Labiatae*).  
*Majana aurea* 296, t. 102, f. 3=*Coleus blumei* Benth. (*Labiatae*).  
*Sonchus amboinicus* 297, t. 103, f. 1=*Emilia sonchifolia* DC. (*Compositae*).  
*Sonchus volubilis* 299, t. 103, f. 2=*Blumea chinensis* DC. (*Compositae*).  
*Sonchus volubilis javanicus* 299, t. 104, f. 1=*Pluchea indica* Less. (*Compositae*).  
*Herba sentiens* 301, t. 104, f. 2=*Biophytum sensitivum* DC. (*Oxalidaceae*).  
*Herba mimosa* 303=*Mimosa pudica* Linn. (*Leguminosae*).  
*Caban cabanan* 304=*Leguminosae* indet. sub *Mimosa*.  
*Aeschynomene theophrasti* 304=*Leguminosae* indet.  
*Similis planta peruana* 304=*Leguminosae* indet. sub *Mimosa*.  
*Altera planta peruana* etc. 304=*Leguminosae* indet. sub *Mimosa*.  
*Pina hui huitzli* 304=*Leguminosae* indet. sub *Mimosa*.  
*Planta sentiens hispanorum* 304=*Leguminosae* indet. sub *Mimosa*.  
*Arbor pudica* 305=*Leguminosae* indet. sub *Mimosa*.  
*Herba viva* 305=indet. sub *Mimosa*.  
*Tulipa javana* 306, t. 105=*Crinum zeylanicum* Linn. (*Amaryllidaceae*).  
*Arum indicum sativum* 308, t. 106=*Alocasia macrorrhiza* Schott (*Araceae*).  
*Arum silvestre I latifolium* 310=*Alocasia macrorrhiza* Schott (*Araceae*).  
*Arum silvestre II medium* 310, t. 107=? *Alocasia longiloba* Miq. (*Araceae*).  
*Arum aquaticum* 312, t. 108=*Aglaonema oblongifolium* Kunth (*Araceae*).  
*Arum aegyptium* 313, t. 109=*Colocasia esculenta* Schott (*Araceae*).  
*Caladium aquatile* 318, t. 110, f. 1=*Colocasia esculenta* Schott (*Araceae*).  
*Arisarum amboinicum* 319, t. 110, f. 2=*Typhonium divaricatum* Dcne. (*Araceae*).  
*Arisarum esculentum* 321, t. 111, f. 1=*Schizmatoglottis calyptrata* Z. & M. (*Araceae*).

- Dracunculus amboinicus* I niger 322, t. 111, f. 2=*Homalomena cordata* Schott (*Araceae*).
- Dracunculus amboinicus* II albus 322=*Homalomena* sp. (*Araceae*).
- Dracunculus amboinicus* III ruber 323=*Homalomena* sp. (*Araceae*).
- Tacca sativa* 324, t. 112=*Tacca pinnatifida* Forst. (*Taccaceae*) and *Amorphophallus campanulatus* Blume (*Araceae*).
- Yucca* 325=*Manihot utilisissima* Pohl (*Euphorbiaceae*).
- Erva de Sta Maria* 326=*Araceae* indet.
- Tacca phallifera* 326, t. 113, f. 1=*Tacca pinnatifida* Forst. (*Taccaceae*).
- Taccaea fungus* 326, t. 113, f. 2=*Amorphophallus campanulatus* Blume (*Araceae*).
- Itelpou* 327=*Araceae* indet.
- Tacca litorea* 328, t. 114=*Tacca pinnatifida* Forst. (*Taccaceae*).
- Tacca montana* (incl. minor et major) 329, t. 115=*Tacca palmata* Blume (*Araceae*).
- Piper longum* 333, t. 116, f. 1=*Piper retrofractum* Vahl (*Piperaceae*).
- Piper longum americanum* 334=*Piper* sp. (*Piperaceae*).
- Piper e philippinis* (sabia) 334=*Piper retrofractum* Vahl (*Piperaceae*).
- Piper e philippinis* (samo) 335=*Piper betle* Linn. (*Piperaceae*).
- Piper album & nigrum* 335=*Piper nigrum* Linn. (*Piperaceae*).
- Sirii folium* 336, t. 116, f. 2=*Piper betle* Linn. (*Piperaceae*).
- Siriboa* 340, t. 117=*Piper betle* var. *siriboa* C. DC. (*Piperaceae*).
- Sirium silvestre* 342 t. 118, f. 1, 2=*Piper caducibracteum* C. DC. (*Piperaceae*).
- Sirium terrestre* 344, t. 119, f. 1=*Piper sarmentosum* Roxb. (*Piperaceae*).
- Sirium frigidum rotundifolium* 345, t. 119, f. 2=*Piper* sp. (*Piperaceae*).
- Sirium frigidum latifolium* 345=*Piper* sp. (*Piperaceae*).
- Ubiu vulgare* 346, t. 120=*Dioscorea alata* Linn. (*Dioscoreaceae*).
- Ubiu digitatum* 350, t. 121=*Dioscorea alata* Linn. (*Dioscoreaceae*).
- Ubiu draconum* 351, t. 122, f. D, E=*Dioscorea alata* Linn. (*Dioscoreaceae*).
- Ubiu anniversarium* 353, t. 123=*Dioscorea alata* Linn. (*Dioscoreaceae*).
- Ubiu pomiferum* (incl. *silvestre*) 354, t. 124=*Dioscorea bulbifera* Linn. (*Dioscoreaceae*).
- Inham St. Thome* 355=*Dioscorea alata* Linn. (*Dioscoreaceae*).
- Ubiu ovale* 356, t. 125=*Dioscorea alata* Linn. (*Dioscoreaceae*).
- Combilium* 327, t. 126=*Dioscorea esculenta* Burkill (*Dioscoreaceae*).
- Ubiu quinquefolium* 359, t. 127=*Dioscorea pentaphylla* Linn. (*Dioscoreaceae*).
- Mandihoca* 360=*Manihot utilisissima* Pohl (*Euphorbiaceae*).
- Ubiu silvestre* 361, t. 128=*Dioscorea hispida* Dennst. (*Dioscoreaceae*).
- Colot* 364=*Dioscorea hispida* Dennst. (*Dioscoreaceae*).
- Ubiu polypoides* I album 364, t. 129=*Stemona tuberosa* Lour. (*Stemonaceae*).
- Ubiu polypoides* II nigrum 365=*Stemona moluccana* C. H. Wright (*Stemonaceae*).
- Batatta* 367, t. 130=*Ipomoea tuberosa* Poir. (*Convolvulaceae*).
- Batatta mammosa* 370, t. 131=? *Operculina turpethum* S. Manso (*Convolvulaceae*).
- Glans terrestris costensis* 372, t. 132, f. 1=*Coleus tuberosus* Benth. (*Labiales*).
- Cacara bulbosa* 373, t. 132, f. 2=*Pachyrrhizus erosus* Urb. (*Leguminosae*).

- Lobus quadrangularis* 374, t. 133=*Psophocarpus tetragonolobus* DC. (*Leguminosae*).
- Dolichos sinensis* 375, t. 134=*Vigna sinensis* Endl. (*Leguminosae*).
- Lobus machaeroides* 376, t. 135, f. 1=*Canavalia gladiata* DC. (*Leguminosae*).
- Phaseolus balicus* 377, t. 135, f. 2=*Cajanus cajan* Millsp. (*Leguminosae*).
- Cacara* 378, t. 136=*Dolichos lablab* Linn. (*Leguminosae*).
- Cacara alba* 380, t. 137=*Dolichos lablab* Linn. (*Leguminosae*).
- Cacara nigra* 381, t. 138=*Mucuna aterrima* Merr. (*Leguminosae*).
- Phaseolus scriptus* 382=? *Phaseolus vulgaris* Linn. (*Leguminosae*).
- Faba rubra* 382=? *Phaseolus vulgaris* Linn. (*Leguminosae*).
- Phaseolus minor* 383, t. 139, f. 1=*Vigna cylindrica* Merr. (*Leguminosae*).
- Phaseolus minimus* 386, t. 139, f. 2=*Phaseolus aureus* Roxb. (*Leguminosae*).
- Phaseolus minimus silvestris* 387=*Pueraria phaseoloides* Benth. (*Leguminosae*).
- Cadelium* 388, t. 140=*Glycine max* Merr. (*Leguminosae*).
- Phaseolus cylindraceus* 389=*Phaseolus calcaratus* Roxb. (*Leguminosae*).
- Cacara litorea* 390, t. 141, f. 1=*Canavalia microcarpa* Merr. (*Leguminosae*).
- Cacara litorea* 390, p. p.=*Canavalia lineata* DC. (*Leguminosae*).
- Phaseolus maritimus* 391, t. 141, f. 2=*Vigna marina* Merr. (*Leguminosae*).
- Cacara pilosa* 392=*Mucuna aterrima* Merr. (*Leguminosae*).
- Cacara pruritus* 393, t. 142=*Mucuna pruriens* DC. (*Leguminosae*).
- Comolenga* 395, t. 143=*Benincasa hispida* Cogn. (*Cucurbitaceae*).
- Cucurbita lagenaria* 397, t. 144=*Lagenaria leucantha* Rusby (*Cucurbitaceae*).
- Cucurbita lagenaria silvestris* 398=*Lagenaria leucantha* Rusby (*Cucurbitaceae*).
- Cucurbita indica vulgaris* 398=? *Lagenaria leucantha* Rusby (*Cucurbitaceae*).
- Pepo indicus* 399, t. 145=*Cucurbita pepo* Linn. (*Cucurbitaceae*).
- Anguria indica* (incl. *altera*) 400, t. 146, f. 1=*Citrullus vulgaris* Schrad. (*Cucurbitaceae*).
- Melo 404=*Cucumis melo* Linn. (*Cucurbitaceae*).
- Cucumis indicus* 404 (incl. *vulgaris*, *butonensis*, *sinensis*)=*Cucumis sativus* Linn. (*Cucurbitaceae*).
- Cucumis indicus IV maximus* 404=*Cucumis melo* Linn., var. (*Cucurbitaceae*).
- Petola s. Petola Tschina* 405, t. 147=*Luffa cylindrica* Roem. (*Cucurbitaceae*).
- Petola anguina* 407, t. 148=*Trichosanthes anguina* Linn. (*Cucurbitaceae*).
- Petola bengalensis* 408, t. 149=*Luffa acutangula* Roxb. (*Cucurbitaceae*).
- Petola silvestris* 409, t. 150=*Luffa cylindrica* Roem. (*Cucurbitaceae*).
- Amara indica* 410, t. 151=*Momordica charantia* Linn. (*Cucurbitaceae*).
- Amara sinica* 411=*Momordica charantia* Linn. (*Cucurbitaceae*).
- Amara silvestris* 413, t. 152, f. 1=? *Momordica charantia* Linn. (*Cucurbitaceae*).
- Poppya rotunda* 414, t. 153=*Momordica cochinchinensis* Spreng. (*Cucurbitaceae*).
- Poppya oblonga* 414=? *Momordica cochinchinensis* Spreng. (*Cucurbitaceae*).

- Poppya silvestris* 414, t. 152, f. 2=*Trichosanthes trifolia* Merr. (*Cucurbitaceae*).
- Pomum amoris* 416, t. 154, f. 1=*Lycopersicum esculentum* Mill. (*Solanaceae*).
- Gandola* (incl. *alba* et *rubra*) 417, t. 154, f. 2=*Basella rubra* Linn. (*Basellaceae*).
- Olus vagum* (incl. *palustre*) 419, t. 155, f. 1=*Ipomoea reptans* Poir. (*Convolvulaceae*).
- Flos cardinalis* (incl. *albus*) 421, t. 155, f. 2=*Quamoclit pennata* Boj. (*Convolvulaceae*).
- Serunium aquatile* 423, t. 156, f. 1=*Wedelia biflora* DC. (*Compositae*).
- Chamaebalanus japonica* 426, t. 156, f. 2=*Arachis hypogaea* Linn. (*Leguminosae*).
- Convolvulus laevis indicus major* 428, t. 157, f. 1, 2=*Merremia peltata* Merr. (*Convolvulaceae*).
- Convolvulus laevis indicus rubra* 429=*Ipomoea rumphii* Miq.=? *Stictocardia campanulata* Merr. (*Convolvulaceae*).
- Convolvulus laevis indicus nigra* 429=*Ipomoea rumphii* Miq.=? *Stictocardia campanulata* Merr. (*Convolvulaceae*).
- Convolvulus laevis minor* (incl. II *femina* et *mas*) 431, t. 158=*Merremia umbellata* Hallier f. (*Convolvulaceae*).
- Convolvulus laevis III ampas ampas* 432=*Stephania forsteri* A. Gray (*Menispermaceae*).
- Convolvulus coeruleus* 432=*Ipomoea indica* Merr. (*Convolvulaceae*).
- Convolvulus marinus major* 433, t. 159, f. 1=*Ipomoea pes-caprae* Roth (*Convolvulaceae*).
- Convolvulus marinus II minor* 433=*Ipomoea pes-caprae* Roth (*Convolvulaceae*).
- Convolvulus riparius* 435 t. 159, f. 2=*Ipomoea gracilis* R. Br. (*Convolvulaceae*).
- Convolvulus foetidus* 436, t. 160=*Paederia foetida* Linn. (*Rubiaceae*).
- Pseudochina amboinensis* 437, t. 161=*Smilax javensis* A. DC. (*Liliaceae*).
- Pseudochina amboinensis II nigra* 439=*Smilax leucophylla* Blume (*Liliaceae*).
- Pseudochina alba latifolia* Rumph. 438=? *Smilax leucophylla* var. *platyphylla* Merr. (*Liliaceae*).
- Radix chinae* 441=? *Smilax china* Linn. (*Liliaceae*).
- Ubiunum nummularium* 444, t. 162=*Dioscorea nummularia* Lam. (*Dioscoreaceae*).
- Ubiunum nummularium floriferum* 445, t. 163=? *Dioscorea nummularia* Lam. (*Dioscoreaceae*).
- Funis crepitans I major* 446, t. 164, f. 1=*Cissus repens* Lam. (*Vitaceae*).
- Funis crepitans II minor* 446, t. 164, f. 2=*Cissus repens* Lam. (*Vitaceae*).
- Funis crepitans III trifolia* 447, t. 165=*Columella geniculata* Merr. (*Vitaceae*).
- Funis crepitans IV* 447=*Cissus* sp. (*Vitaceae*).
- Vitis alba indica* 448, t. 166, f. 1=*Coccinea cordifolia* Cogn. (*Cucurbitaceae*).
- Folium causonis* 450, t. 166, f. 2=*Columella trifolia* Merr. (*Vitaceae*).
- Folium causonis litoreum* 450=*Tetrastigma* sp. (*Vitaceae*).
- Labrusca molucca* 452, t. 167=*Ampelocissus arachnoidea* Planch. (*Vitaceae*).
- Radix vesicatoria* 453, t. 168=*Plumbago indica* Linn. (*Plumbaginaceae*).

- Pes equinus* 455, t. 169, f. 1 = *Centella asiatica* Urb. (Umbelliferae).  
*Empetrum acetosum* I album 457, t. 169, f. 2 = *Begonia tuberosa* Lam. (Begoniaceae).  
*Empetrum acetosum* II rubrum 457 = *Begonia* sp. (Begoniaceae).  
*Empetrum acetosum* III cordatum 457 = *Begonia* sp. (Begoniaceae).  
*Serratula amara* 459, t. 170, f. 1 = *Curanga fel-terrae* Merr. (Scrophulariaceae).  
*Crusta ollae* I major 460, t. 170, f. 2 = *Ilysanthes antipoda* Merr. (Scrophulariaceae).  
*Crusta ollae* II minor 461, t. 170, f. 3 = *Lindernia crustacea* F. Muell. (Scrophulariaceae).  
*Crusta ollae* III angustifolia 461, t. 170, f. 4 = *Dentella repens* Forst. (Rubiaceae).  
*Herba timoris* 462 = ?  
*Cucumis murinus ruber* 463, t. 171, f. 1 = *Melothria javanica* Cogn. (Cucurbitaceae).  
*Cucumis murinus viridis* 463, t. 171, f. 2 = *Melothria indica* Lour. (Cucurbitaceae).  
*Corona ariadnes* I punicea 464, t. 172 = *Hoya sussuela* Merr. (Asclepiadaceae).  
*Corona ariadnes* II lutea 465 = *Hoya lutea* Dcne. (Asclepiadaceae).  
*Apocynum* 466 = *Periploca graeca* Linn. (Asclepiadaceae).  
*Sussuela esculenta* I mas 467, t. 173, f. 1 = *Cynanchum* sp. (Asclepiadaceae).  
*Sussuela esculenta* II femina 467, t. 173, f. 2 = *Cynanchum ovalifolium* Wight (Asclepiadaceae).  
*Olus crepitans* I mas 469, t. 174, f. 1 = *Tylophora* sp. (Asclepiadaceae).  
*Olus crepitans* II femina 469, t. 174, f. 2 = *Dischidia* sp. (Asclepiadaceae).  
*Nummularia lactea major* I fusca 470, t. 175, f. 1 = *Hoya rumphii* Blume (Asclepiadaceae).  
*Nummularia lactea major* II alba 470 = *Hoya alba* Kostel. (Asclepiadaceae).  
*Nummularia lactea major minor* 471, t. 175, f. 2 = *Hoya* sp. (Asclepiadaceae).  
*Nummularia lactea major* III albo-purpurea 471 = *Hoya elegans* Kostel. (Asclepiadaceae).  
*Nummularia lactea minor* I minima 472, t. 176, f. 1 = *Dischidia nummularia* R. Br. (Asclepiadaceae).  
*Nummularia lactea minor* II major 473, t. 176, f. 2 = *Dischidia rumphii* Miq. (Asclepiadaceae).  
*Pustula arborum* 473, t. 175, f. 3 = *Conchophyllum imbricatum* Blume (Asclepiadaceae).  
*Peponaster major* 474 = *Aristolochia* sp. (Aristolochiaceae).  
*Radix puloronica* s. *peponaster minor* 476, t. 177 = *Aristolochia rumphii* Kostel. (Aristolochiaceae).  
*Oculus astaci* 479, t. 178, f. 1 = *Cissus aristata* Blume. (Vitaceae).  
*Olus crepitans mas* 480, t. 178, f. 2 = *Finlaysonia obovata* Wall. (Asclepiadaceae).  
*Funis toacciae* 481, t. 179 = *Fagraea amboinensis* Blume (Loganiaceae).  
*Olus sanguinis* 482, t. 180 = *Cardiopterix moluccana* Blume (Icaciniaceae).  
*Adpendix arborum* (incl. parvifolia et media) 483, t. 181, f. 1, 2 = *Pothos latifolius* Linn. (Araceae).  
*Adpendix porcellanica* 485, t. 182, f. 1 = *Pothos rumphii* Schott (Araceae).

- Adpendix erecta 487, t. 182, f. 2=*Aglaonema oblongifolium* Kunth (Araceae).  
 Adpendix cuscuaria I angustifolia 488=*Freycinetia* sp. (Pandananaceae).  
 Adpendix cuscuaria II latifolia 489, t. 183, f. 1=*Scindapsus marantaefolia* Miq. (Araceae).  
 Adpendix laciniata 489, t. 183, f. 2=*Epipremnum pinnatum* Engl. (Araceae).  
 Adpendix duplo folio 490, t. 184, f. 1, 2=*Pothos longifolius* Presl (Araceae).  
 Adpendix III 490, t. 184, f. 3=*Pothos longifolius* Presl (Araceae).  
 Cussuta v. Cussutha indica 491, t. 184, f. 4=*Cassytha filiformis* Linn. (Lauraceae).

## VOLUME VI

- Cyperus rotundus* 1, t. 1, f. 1=*Cyperus rotundus* Linn. (Cyperaceae).  
*Cyperus rotundus* II floridus, 2, t. 1, f. 2=*Pycereus odoratus* Urb. (Cyperaceae).  
*Cyperus rotundus* (vars.) 3, 4=Cyperaceae indet.  
*Cyperus longus* 5, t. 2, f. 1=*Remirea maritima* Aubl. (Cyperaceae).  
*Cyperus littoreus* 6, t. 2, f. 2=*Spinifex littoreus* Merr. (Cyperaceae).  
*Cyperus dulcis* 7, t. 3, f. 1=*Eleocharis dulcis* Trin. (Cyperaceae).  
 Gramen capitatum 8, t. 3, f. 2=*Kyllinga monocephala* Rottb. (Cyperaceae).  
 Gramen vaccinum femina 9, t. 4, f. 1=*Dactyloctenium aegyptium* Richt. (Gramineae).  
 Gramen vaccinum mas 10, t. 4, f. 2=*Eleusine indica* Gaertn. (Gramineae).  
 Goddam 10=*Eleusine corocana* Gaertn. (Gramineae).  
 Gramen repens minus 11=*Cynodon dactylon* Pers.  
 Gramen caninum 11=*Digitaria sanguinalis* Scop., var. (Gramineae).  
 Gramen fumi 11, t. 4, f. 3=*Eragrostis amabilis* W. & A. (Gramineae).  
 Champeu 11=*Panicum stagninum* Retz. (Gramineae).  
 Gramen supplex 12=*Digitaria sanguinalis* Scop. (Gramineae).  
 Gramen roris (incl. litoreum) 12=*Thuarea involuta* R. Br. (Gramineae).  
 Gramen anatum 13=*Panicum reptans* Linn. (Gramineae).  
 Gramen aciculatum 13, t. 5, f. 1=*Andropogon aciculatum* Retz. (Gramineae).  
 Hippogrostis amboinica I major 14, t. 5, f. 2=*Ischaemum timorense* Kunth (Gramineae).  
 Hippogrostis amboinica II minor 14, t. 5, f. 3=*Oplismenus compositus* Beauv. (Gramineae).  
 Gramen arguens 15, t. 6, f. 1=*Themeda frondosa* Merr. (Gramineae).  
 Calamagrostis 16, t. 6, f. 2=*Anthistiria gigantea* Hack. (Gramineae).  
 Gramen polytrichum amboinense 17, t. 7, f. 1=*Fimbristylis setacea* Benth. (Cyperaceae).  
 Gramen caricosum 17, t. 7, f. 2=*Imperata cylindrica* Beauv. var. *koenigii* (Retz.) Benth. (Gramineae).  
 Gramen vulpinum 18, t. 7, f. 2 B=*Setaria flava* Kunth (Gramineae).  
 Phoenix amboinica montana 19, t. 7, f. 3=*Andropogon amboinicus* Merr. (Gramineae).  
 Carex amboinica I major 20, t. 8, f. 1=*Scleria bancana* Miq. (Cyperaceae).  
 Carex amboinica II minor 20=*Scleria lithosperma* Sw. (Cyperaceae).  
 Carex amboinica III 20=Cyperaceae indet.  
 Carex amboinica laevis major 21=*Mapania macrocephala* K. Sch. (Cyperaceae).

- Carex amboinica laevis minor* 21=*Hypolytrum latifolium* L. C. Rich. (Cyperaceae).
- Carex arborea* 21, t. 8, f. 3=*Freycinetia graminea* Blume (Pandanaceae).
- Carex culmaris* 21=*Gahnia rawacensis* Steud. (Cyperaceae).
- Lithospermum amboinicum* 22, t. 9, f. 1=*Coix lachryma jobi* (Linn.) (Gramineae).
- Arundinella I minor* 23, t. 9, f. 2=*Commelina nudiflora* Linn. (Commelinaceae).
- Arundinella II major* 24=*Commelina benghalensis* Linn. (Commelinaceae).
- Arundinella III aquatica* 24=*Cyanotis moluccana* Merr. (Commelinaceae).
- Arundinella IV adhaerens* 25=*Aneilema vitiense* Seem. var. *petiolata* C. B. Clarke (Commelinaceae).
- Arundinella V albiflora* 25=*Floscopa scandens* Lour. (Commelinaceae).
- Crateogonum amboinicum I minus* 25=*Hedyotis tenelliflora* Blume (Rubiaceae).
- Crateogonum amboinicum II majus* 25, t. 10=*Hedyotis verticillata* Lam. (Rubiaceae).
- Rosmarinus verus sinensis* 26=*Rosmarinus officinalis* Linn. (Labiatae).
- Auris canina I femina* 26, t. 11=*Cyathula prostrata* Blume (Amaranthaceae).
- Auris canina II mas* 27, t. 12, f. 1=*Achyranthes aspera* Linn. (Amaranthaceae).
- Herba memoriae* 29, t. 12, f. 2=*Pouzolzia zeylanica* Benn. (Urticaceae).
- Prunella molucca hortensis I latifolia* 30, t. 13, f. 1=*Hemigraphis* sp. (Acanthaceae).
- Prunella molucca hortensis II angustifolia* 30, t. 13, f. A. B.=*Hemigraphis angustifolia* Hallier f. (Acanthaceae).
- Prunella molucca hortensis III* 31=*Hemigraphis petola* Hallier f. (Acanthaceae).
- Prunella molucca silvestris I alba* 31, t. 13, f. 2=*Hemigraphis reptans* var. *glaucescens* Hallier f. (Acanthaceae).
- Prunella molucca silvestris II rubra* 32, t. 13, f. 3=*Hemigraphis* sp. (Acanthaceae).
- Prunella molucca silvestris III rotunda* 32=*Hemigraphis* sp. (Acanthaceae).
- Ophicolla altera* 34=*Pseuderanthemum curtatum* Merr. (Acanthaceae).
- Aylilin* 34=indet.
- Olus scrofinum I album* 34, t. 14, f. 1=*Adenostemma lavenia* O. Kuntze (Compositae).
- Olus scrofinum II rubrum* 35=*Ageratum conyzoides* Linn. (Compositae).
- Olus scrofinum III luteum* 35=*Crepis japonica* Benth. (Compositae).
- Senecio amboinicus* 36, t. 14, f. 2=*Vernonia cinerea* Less. (Compositae).
- Olus squillarum* 37, t. 15, f. 1=*Alternanthera sessilis* R. Br. (Amaranthaceae).
- Agrimonia molucca* 38, t. 15, f. 2=*Bidens chinensis* Willd. (Compositae).
- Herba admirationis* 39=*Leucas zeylanica* R. Br. (Labiatae).
- Herba admirationis*, quoad t. 16, f. 1=*Leucas lavandulifolia* Sm.
- Majana foetida* 41, t. 16, f. 2=*Dysophylla auricularia* Blume (Labiatae).
- Herba moeroris alba* 41, t. 17, f. 1=*Phyllanthus niruri* Linn. (Euphorbiaceae).
- Herba moeroris rubra* 41, t. 17, f. 2=*Phyllanthus urinaria* Linn. (Euphorbiaceae).
- Ecliptica* 43, t. 18, f. 1=*Eclipta alba* (Linn.) Hassk. (Compositae).

- Sigalurium* I rotundum 44, t. 19=*Sida retusa* Linn. (*Malvaceae*).  
*Sigalurium* II longifolium 45, t. 18, f. 2=*Sida acuta* Burm. f. (*Malvaceae*).  
*Sigalurium* III album 45=*Sida* sp. (*Malvaceae*).  
*Urtica* decumana (incl. alba et rubra) 47, t. 20, f. 1=*Laportea decumana* (Roxb.) Wedd. (*Urticaceae*).  
*Urtica* decumana III vulgaris 48=*Fleurya interrupta* Gaudich. (*Urticaceae*).  
*Urtica* mortua 49, t. 20, f. 2=*Micrococca mercurialis* Benth. (*Euphorbiaceae*).  
*Herba vitiliginum* 49, t. 21, f. 1=*Jussiaea suffruticosa* Linn. (*Oenotheraceae*).  
*Folium tinctorium* (incl. album et rubrum) 51, t. 22, f. 1=*Peristrophe bivalvis* Merr. (*Acanthaceae*).  
*Bungum* I mas 52, t. 22, f. 2=*Lepidagathis rumphii* Merr. (*Acanthaceae*).  
*Bungum* II femina 52, t. 21, f. 2=*Pseuderanthemum pulchellum* Merr. (*Acanthaceae*).  
*Moretiana* 53, t. 23, f. 1=*Ruellia repens* Linn. (*Acanthaceae*).  
*Olus caprinum* 54=*Pseuderanthemum racemosum* Radlk. (*Acanthaceae*).  
*Esula esculenta* 54, t. 23, f. 2=*Euphorbia hirta* Linn. (*Euphorbiaceae*).  
*Conyza odorata* 55, t. 24, f. 1=*Blumea balsamifera* DC. (*Compositae*).  
*Conyza indica mas* 56=? *Blumea appendiculata* DC. (*Compositae*).  
*Conyza cadaverum* 56=? *Blumea appendiculata* DC. (*Compositae*).  
*Conyza indica minor* 56=*Blumea* sp. (*Compositae*).  
*Adulterina* 58, t. 25, f. 1=*Solanum verbascifolium* Linn. (*Solanaceae*).  
*Lappago amboinica laciniata* 59, t. 25, f. 2=*Urena lobata* Linn. (*Malvaceae*).  
*Lappago amboinica silvestris* 60=*Triumfetta bartramia* Linn. (*Tiliaceae*).  
*Halicacabus indicus* I major 60=*Physalis angulata* Linn. (*Solanaceae*).  
*Halicacabus indicus* II minor 61, t. 26, f. 1=*Physalis minima* Linn. (*Solanaceae*).  
*Halicacabus peregrinus* 61, t. 24, f. 2=*Cardiospermum halicacabum* Linn. (*Sapindaceae*).  
*Halicacabus baccifer* 62, t. 26, f. 2=*Solanum nigrum* Linn. (*Solanaceae*).  
*Palmifilix* I nigra 63, t. 27=*Cyathea amboinensis* (v. A. v. R.) Merr. (*Cyatheaceae*).  
*Palmifilix* II alba 63=*Cyathea rumphiana* (v. A. v. R.) Merr. (*Cyatheaceae*).  
*Palmifilix* III postium 63=*Cyathea* sp. (*Cyatheaceae*).  
*Filix canarina* 64=*Polypodiaceae* indet.  
*Filix aquatica* 65, t. 28=*Angiopteris amboinensis* De Vr. (*Marattiaceae*).  
*Filix aquatica* II mas 66=*Polypodiaceae* indet.  
*Filix esculenta* 67, t. 29=*Athyrium esculentum* Copel. (*Polypodiaceae*).  
*Filix amboinica mas* 69=*Dryopteris ferox* O. Kuntze (*Polypodiaceae*).  
*Filix amboinica urens* 69=*Polypodiaceae* indet.  
*Filix lanuginosa* 69=*Cibotium baranetz* J. Sm. vel *Dicksonia sorbifolia* Sm.  
*Lonchitis amboinica recta* I major rubra 70, t. 30, f. 1=*Blechnum orientale* Linn. (*Polypodiaceae*).  
*Lonchitis amboinica recta* I major alba 70, t. 30, f. 2=? *Polypodium pallens* Blume (*Polypodiaceae*).  
*Lonchitis amboinica recta* II minor nigra 71=*Tectaria crenata* Cav. (*Polypodiaceae*).  
*Lonchitis amboinica recta* II minor alba 71=*Polypodiaceae* indet.



- Lonchitis amboinica* III *volubilis* 71, t. 31=*Stenochlaena palustris* Bedd. (*Polypodiaceae*).  
*Lonchitis saguaria* 72=*Polypodiaceae* indet.  
*Lonchitis amara* 72=*Polypodiaceae* indet.  
*Lonchitis pilosa* 72=*Polypodiaceae* indet.  
*Lonchitis muscosa* 62=*Polypodiaceae* indet.  
*Dryopteris triplex arborea* 73, t. 32, f. 1=*Davallia elata* Spreng. (*Polypodiaceae*).  
*Dryopteris triplex silvestris* I *terrestris* 74=*Tapeinidium amboynense* C. Chr. (*Polypodiaceae*).  
*Dryopteris triplex silvestris arborea* 74=*Polypodiaceae* indet.  
*Dryopteris triplex silvestris petraea* 74=*Adiantum* or *Lindsaya* sp. (*Polypodiaceae*).  
*Dryopteris campestris* 74, t. 34, f. 2=*Cheilanthes tenuifolia* Sw. (*Polypodiaceae*).  
*Adiantum volubile* I *polypoides* 75, t. 33=*Lygodium circinatum* Sw. (*Schizaeaceae*).  
*Adiantum volubile* II *medium* 75=*Lygodium circinatum* Sw. (*Schizaeaceae*).  
*Adiantum volubile* III *minus* 75, t. 32, f. 2, 3=*Lygodium scandens* Sw. (*Schizaeaceae*).  
*Capillus veneris amboinicus* 77, t. 34, f. 1=*Adiantum* sp. (*Polypodiaceae*).  
*Filix florida* 78, t. 35, f. 1=*Stenosemia aurita* Presl (*Polypodiaceae*).  
*Polypodium indicum* I *pilosum s. majus* 78, t. 36=*Drynaria sparsisora* Moore (*Polypodiaceae*).  
*Polypodium indicum* II *minus* 80, t. 35, f. 2=*Polypodium phymatodes* Linn. (*Polypodiaceae*).  
*Phyllitis amboinica* I *arborea* 82 (t. 37, f. 1?)=*Asplenium nidus* Linn. (*Polypodiaceae*).  
*Phyllitis amboinica* II *terrestris* 82=*Asplenium nidus* Linn. (*Polypodiaceae*).  
*Simbar majangan* 83=*Platyserium coronarium* Desv. (*Polypodiaceae*).  
*Scolopendria major* 84, t. 37, f. 3=*Ophioglossum pendulum* Linn. (*Ophioglossaceae*).  
*Scolopendria minor* 84=? *Polypodium sinuosum* Wall. (*Polypodiaceae*).  
*Filix calamaria* 85, t. 38=*Gleichenia linearis* Clarke (*Gleicheniaceae*).  
*Muscus frutescens femina* 86, t. 39, f. 1=*Selaginella plana* Hieron. (*Selaginellaceae*).  
*Muscus frutescens mas* 87, t. 39, f. 2=*Selaginella d'urvillei* A. Br. (*Selaginellaceae*).  
*Muscus frutescens* III *muscagineus* 87=*Fungi* indet.  
*Cingulum terrae* 87, t. 40, f. 1=*Lycopodium cernuum* Linn. (*Lycopodiaceae*).  
*Barba saturni* 88=*Usnea* sp. (*Lichenes*).  
*Muscus capillaris* 89, t. 40, f. 2=*Usnea* sp. (*Lichenes*).  
*Muscus gelatinus japonicum* 90, t. 40, f. 3=*Gelidium amansii* Kütz. (*Rhodophyceae*).  
*Capillus nymphaeum* 90=*Chaetomorpha javanicum* Kütz. (*Chlorophyceae*).  
*Alga coralloides sinensium* 90=*Algae* indet. (*Rhodophyceae*).  
*Tschintschau javanense* 90=*Salvia plebeia* R. Br. (*Labiatae*).  
*Equisetum amboinicum* 91, t. 41, f. 1=*Lycopodium phlegmaria* Linn. (*Lycopodiaceae*).

- Equisetum amboinicum minor* 92=? *Lycopodium nummularifolium* Blume (*Lycopodiaceae*).
- Equisetum secundum* 92=*Psilotum triquetrum* Sw. (*Psilotaceae*).
- Equisetum silvestre* 92=*Schizaea dichotoma* Sw. (*Schizaeaceae*).
- Folium petolatum* I mas 92, t. 41, f. 2=? *Zeuxine amboinensis* J. J. Sm. (*Orchidaceae*).
- Folium petolatum* II femina 93, t. 41, f. 3=*Anoectochilus reinwardtii* Blume (*Orchidaceae*).
- Angraecum scriptum* 95, t. 42=*Graptophyllum pictum* Blume (*Orchidaceae*).
- Angraecum* II mangarum 96=*Orchidaceae* indet.
- Angraecum* III cocorum 96=*Orchidaceae* indet.
- Angraecum album majus* 99, t. 43=*Phalaenopsis amabilis* Blume (*Orchidaceae*).
- Angraecum album majus flore purpureo* 99=*Phalaenopsis amabilis* Blume (*Orchidaceae*).
- Angraecum album majus var. altera* 99=*Phalaenopsis amabilis* Blume (*Orchidaceae*).
- Angraecum album minus* 99, t. 44, f. 1=*Dendrobium ephemerum* J. J. Sm. (*Orchidaceae*).
- Angraecum rubrum* 101, t. 44, f. 2=*Renanthera moluccana* Blume (*Orchidaceae*).
- Angraecum quintum* 102=*Vandopsis lissochiloides* Pfitz. (*Orchidaceae*).
- Angraecum flavum sextum moschatum* 102=*Dendrobium rumphianum* Teysm. (*Orchidaceae*).
- Angraecum flavum septimum* 103, t. 45 (et t. 46, f. 2?)=*Dendrobium mirbelianum* Gaudich. (*Orchidaceae*).
- Angraecum flavum octavum* 104, t. 46, f. 1=*Vanda furva* Lindl. (*Orchidaceae*).
- Angraecum flavum nonum* 104=? *Dendrobium rumphianum* T. & B. (*Orchidaceae*).
- Angraecum flavum decimum* 104=*Luisia confusa* Rchb. f. (*Orchidaceae*).
- Angraecum caninum undecimum* 105, t. 47, f. 1=*Dendrobium anosmum* Lindl. (*Orchidaceae*).
- Angraecum nervosum* 106, t. 48=*Coelogyne rumphii* Lindl. (*Orchidaceae*).
- Angraecum pungens* 106=*Sarcanthus subulatus* Reichb. f. (*Orchidaceae*).
- Angraecum saxatile* 107, t. 49, f. 1=*Vanda* sp. (*Orchidaceae*).
- Angraecum crumenatum* t. 47, f. 2=*Dendrobium papilioniferum* J. J. Sm. (*Orchidaceae*).
- Angraecum angustis crumenis* 107=*Eria moluccana* Schltr. & J. J. Sm. (*Orchidaceae*).
- Angraecum sediforme* 107=*Orchidaceae* indet.
- Angraecum uniflorum* 107=*Bulbophyllum* sp. (*Orchidaceae*).
- Angraecum gajang* 108=*Liparis treubii* J. J. Sm. (*Orchidaceae*).
- Angraecum jamboe* 108=*Dendrobium* sp. (*Orchidaceae*).
- Angraecum taeniosum* 108=*Orchidaceae* indet.
- Angraecum lanuginosum* 108=*Eria* sp. (*Orchidaceae*).
- Angraecum purpureum et nudum* 109, t. 49, f. 2=*Dendrobium* sp. (*Orchidaceae*).
- Angraecum purpureum* II silvestre 109, t. 50, f. 1=*Dendrobium purpureum* Roxb. (*Orchidaceae*).
- Herba supplex* I minor 110, t. 50, f. 2=*Dendrobium moluccense* J. J. Sm. (*Orchidaceae*).

- Herba supplex major femina s. secunda III=*Dendrobium acinaciforme* Roxb. (*Orchidaceae*).
- Herba supplex major femina s. secunda t. 51, f. 1=*Dendrobium* sp. (*Orchidaceae*).
- Herba supplex major secunda 111=? *Dendrobium* sp. (*Orchidaceae*).
- Herba supplex major tertia 111=? *Dendrobium* sp. (*Orchidaceae*).
- Herba supplex major quarta 111=*Dendrobium* sp. (*Orchidaceae*).
- Herba supplex major quinta 111, t. 51, f. 2=*Dendrobium calceolum* Roxb. (*Orchidaceae*).
- Angraecum terrestre primum I purpureum 112=*Spathoglottis plicata* Blume (*Orchidaceae*).
- Angraecum terrestre alterum 113, t. 52, f. 1=*Phaius amboinensis* Blume (*Orchidaceae*).
- Angraecum terrestre primum album 113, t. 50, f. 3=*Phaius gratus* Blume (*Orchidaceae*).
- Involucrum s. angraecum terrestre tertium 114, t. 53=*Curculigo capitulata* O. Kuntze (*Amaryllidaceae*).
- Involucrum s. angraecum terrestre alterum 115=*Panicum palmifolium* Koenig (*Gramineae*).
- Flos triplicatus 115, t. 52, f. 2=*Calanthe veratrifolia* R. Br. (*Orchidaceae*).
- Orchis amboinica major I 116=? *Eulophia* sp. (*Orchidaceae*).
- Orchis amboinica major II 117, t. 54, f. 1=*Curculigo orchoides* Gaertn. (*Amaryllidaceae*).
- Orchis amboinica minor 118, t. 54, f. 2=*Habenaria rumphii* Lindl. (*Orchidaceae*).
- Orchis amboinica minor altera 118, t. 54, f. 3=*Peristylus* sp. (*Orchidaceae*).
- Nidus germinans formicarum I nigrarum 119, t. 55, f. 1=*Hydnophytum amboinense* Becc. (*Rubiaceae*).
- Nidus germinans formicarum II rubrarum 119, t. 55, f. 2=*Myrmecodia rumphii* Becc. (*Rubiaceae*).
- Tuber regium 120, t. 57, f. 4=*Lentinus tuber regium* Fries (*Hymenomycetinae*) and *Pachyma tuber regium* Fries (*Fungi*, incert.).
- Hoelen 122=*Pachyma hoelen* Fries (*Fungi*, incert.).
- Tuber sampadarium 123=*Polygaster sampadarius* Fries (*Plectobasidiineae*).
- Boletus moschocaryanus 124=*Agaricus moschocaryanus* Fries (*Hymenomycetinae*).
- Boletus saguarius 124=*Hymenomycetinae* indet.
- Boletus infundibuli forma [figura] 125, t. 56, f. 1=*Lentinus sajor-caju* Fries (*Hymenomycetinae*).
- Boletus infundibuli forma altera 125=? *Lentinus sajor-caju* Fries (*Hymenomycetinae*).
- Boletus II arboreus 125, t. 56, f. 2, 3=*Lentinus djamor* Fries (*Hymenomycetinae*).
- Boletus III umbraculi forma 126=*Hymenomycetinae* indet.
- Boletus IV terrestris 126=*Hymenomycetinae* indet.
- Boletus V auris murina 126, t. 56, f. 4=*Hirneola auricula judae* Berk. (*Hymenomycetinae*).
- Fungus arboreus I 127=*Polyporus* sp. (*Hymenomycetinae*).
- Fungus arboreus II 128=*Polyporus* sp. and *Polystictus sanguineus* Fries (*Hymenomycetinae*).
- Fungus arboreus III 128=*Favolus* sp. (*Hymenomycetinae*).

- Fungus elatus petasoides* 128=*Ganoderma amboinense* (Lam.) Pat. (*Hymenomycetinae*).
- Fungus elatus cochlearis* 129, t. 57, f. 1=*Ganoderma amboinense* (Lam.) Pat. (*Hymenomycetinae*).
- Fungus elatus digitatus* 129, t. 57, f. 2, 3=*Ganoderma cochlear* (Nees) Merr. (*Hymenomycetinae*).
- Fungus igneus* 130, t. 56, f. 5=*Hymenomycetinae* indet.
- Fungus arborum tuberosus* 130=? *Lycoperdon* sp. (*Lycoperdineae*).
- Crepitus lupi verus* 131=*Lycoperdon* sp. (*Lycoperdineae*).
- Phallus daemonum* 131, t. 56, f. 7=*Dictyophora phalloidea* Desv. (*Phallineae*).
- Macuerus femina* 132, t. 58, f. 1=*Cyrtandra decurrens* DeVr. (*Gesneriaceae*).
- Macuerus mas* 133, t. 58, f. 2=*Pellionia sinuata* Boerl. (*Urticaceae*).
- Lomba* 133, t. 59, f. 1=*Piper subpeltatum* Willd. (*Piperaceae*).
- Globba longa* 134, t. 60, f. 1 A=*Amomum rumphii* Sm. (*Zingiberaceae*).
- Globba crispa* I *viridis* 137, t. 61, f. 1=*Amomum* sp. (*Zingiberaceae*).
- Globba crispa* II *rubra* 137, t. 60, f. B-D; t. 61, f. 2=*Amomum roseum* Benth. & Hook. f. (*Zingiberaceae*).
- Globba uviformis* 138, t. 59, f. 2=*Alpinia uviformis* Horan. (vel *Plagios-tachys*) (*Zingiberaceae*).
- Globba hatuana* 138=? *Amomum aculeatum* Roxb. (*Zingiberaceae*).
- Globba uviformis* II *Lawassi malacca* 139=*Riedelia lanata* K. Sch. (*Zingiberaceae*).
- Globba acris* 140=*Amomum acre* Val. (*Zingiberaceae*).
- Globba silvestris major* 140, t. 62, 63=*Alpinia nutans* Horan. (*Zingiberaceae*).
- Globba silvestris minor* 141=*Alpinia gigantea* Blume (*Zingiberaceae*).
- Globba silvestris sekala* 141=? *Amomum* sp. (*Zingiberaceae*).
- Globba silvestris sulica* 141=? *Amomum magnificum* Benth. & Hook. f. (*Zingiberaceae*).
- Globba silvestris pada kanka* 142=*Alpinia* sp. (*Zingiberaceae*).
- Globba silvestris subterranea* 142=*Amomum* sp. (*Zingiberaceae*).
- Herba spiralis* I *hirsuta* 143, t. 64, f. 1=*Costus speciosus* Blume var. *hirsutus* Blume (*Zingiberaceae*).
- Herba spiralis* II *laevis* 143, t. 64, f. 2=*Costus speciosus* Blume (*Zingiberaceae*).
- ABCdaria* 145, t. 65=*Spilanthes acmella* Linn. (*Compositae*).
- Phaseolus montanus* I, II 146=*Tephrosia* sp. (*Leguminosae*).
- Phaseolus montanus* III, IV 146=*Crotalaria linifolia* Linn. f. (*Leguminosae*).
- Crotalaria montana* V 146=*Desmodium gangeticum* DC. (*Leguminosae*).
- Crotalaria montana* V quoad t. 66=*Desmodium ormocarpoides* DC. (*Leguminosae*).
- Crotalaria montana* VI, VII 146=*Desmodium triquetrum* DC. (*Leguminosae*).
- Crotalaria montana* VIII *Tsjeme-tsjeme* 146=*Leguminosae* indet.
- Amoena moesta* 147, t. 67, f. 1=*Cassia mimosoides* Linn. (*Leguminosae*).
- Pilosella amboinica* 148=*Compositae* indet.
- Rhabbarbarum sinense* 148=*Rheum rhabbarbarum* Linn. (*Polygonaceae*).
- Phaseolus adhaerens* 150=*Pseudarthria viscida* W. & A. (*Leguminosae*).

- Terebinthina* 150, t. 67, f. 2 = *Limnophila aromatica* Merr. (*Scrophulariaceae*).
- Menthastrum amboinicum* 151, t. 68, f. 1 = *Limnophila rugosa* Merr. (*Scrophulariaceae*).
- Ophioglossum simplex indicum* 152, t. 68, f. 2 = *Ophioglossum pedunculatum* Desv. (*Ophioglossaceae*).
- Ophioglossum laciniatum* 153, t. 68, f. 3 = *Helminthostachys zeylanica* Hook. (*Ophioglossaceae*).
- Radix toxicaria* I major 155, t. 69 = *Crinum asiaticum* Linn. (*Amaryllidaceae*).
- Radix toxicaria* II terrestris 156 = *Crinum rumphii* Merr. (*Amaryllidaceae*).
- Cepa silvestris* 160, t. 70, f. 1 = *Eurycles amboinensis* Herb. (*Amaryllidaceae*).
- Lilium indicum* 161, t. 70, f. 2 = *Pancratium zeylanicum* Linn. (*Amaryllidaceae*).
- Lilium indicum javanicum* 162 = *Amaryllidaceae* indet.
- Aquifolium indicum* I mas 163, t. 71, f. 1 = *Acanthus ebracteatus* Vahl (*Acanthaceae*).
- Aquifolium indicum* II femina 163, t. 71, f. 2 = *Acanthus volubilis* Wall. (*Acanthaceae*).
- Crithamus indicus* I ruber 165, t. 72, f. 1 = *Sesuvium portulacastrum* Linn. (*Aizoaceae*).
- Crithamus* (Kaly articulatum) 166 = *Salicornia herbacea* Linn. (*Chenopodiaceae*).
- Crithamus verus* 166, t. 72, f. 2 = *Crithamum maritimum* Linn. (*Umbelliferae*).
- Nymphaea indica* major 168, t. 73 = *Nelumbium nelumbo* Druce (*Nymphaeaceae*).
- Nymphaea indica* minor 172 = *Nymphaea pubescens* Willd. & *N. stellata* Willd. (*Nymphaeaceae*).
- Nymphaea indica* minor II ceramica 173, t. 72, f. 3 = *Limnanthemum indicum* Griseb. (*Gentianaceae*).
- Millefolium aquaticum* 176, t. 74, f. 1 = *Ceratopteris thalictroides* Brongn. (*Parkeriaceae*).
- Plantago aquatica* 177, t. 74, f. 2 = *Pistia stratiotes* Linn. (*Araceae*).
- Olus palustre* 178, t. 75, f. 1 = *Monochoria vaginalis* Presl (*Pontederiaceae*).
- Olus palustre* femina 178 = *Monochoria vaginalis* Presl, var. (*Pontederiaceae*).
- Lens palustris* 178 = *Lemna* sp. (*Lemnaceae*).
- Capillus nympharum* 179 = *Chaetomorpha javanica* Kütz. (*Chlorophyceae*).
- Alga coralloides* 181, t. 74, f. 3; t. 76, f. A, B, C = *Gracilaria lichenoides* Harv. (*Rhodophyceae*).
- Acetabulum marinum* 185, t. 76, f. 1 = *Sargassum polycystum* J. Ag. (*Phaeophyceae*).
- Acetabulum marinum* infundibuliforme 185 = *Turbinaria ornata* J. Ag. (*Phaeophyceae*).
- Acetabulum marinum* e Macassar 186 = *Turbinaria* sp. (*Phaeophyceae*).
- Agarum* II s. bracteatum 186 = *Mastocarpus klenzeanus* Kütz. (*Phaeophyceae*).

- Agarum III funiculare s. foliatum 186=*Sargassum aquifolium* Ag. (*Phaeophyceae*).  
 Agarum IV lactucarium 186=*Rhodophyceae* indet.  
 Agarum V corticosum 186=*Algae* indet.  
 Bodelha 187=*Fucus vesiculosus* Linn. (*Phaeophyceae*).  
 Bodelha altera 187=*Himanthalia lorea* Lyng. (*Rhodophyceae*).  
 Sargasso s. Wier 187=*Sargassum flavifolium* Kütz. (*Phaeophyceae*).  
 Sargassum pelagium 188, t. 76, f. 2=*Sargassum bacciferum* Ag. (*Phaeophyceae*).  
 Acorus marinus 191, t. 75, f. 2=*Enhalus acoroides* Steud. (*Hydrocharitaceae*).  
 Cocus maldivicus 210, t. 81=*Lodoicea maldivica* Pers. (*Palmae*).<sup>\*</sup>  
 Compar mangae 217, t. 82, f. 1=*Palmae* indet.  
 Cocus maldivicus minor 218, t. 82, f. 2, 3=*Palmae* indet.  
 Cocus melindanus verus 219, t. 82, f. 4=*Palmae* indet.  
 Calapput laut 219=*Palmae* indet.

## VOLUME VII (AUCTIONARIUM)

- Mangostana celebica 1=*Garcinia celebica* Linn. (*Guttiferae*).  
 Mirobalanus embilica 1, t. 1=*Phyllanthus emblica* Linn. (*Euphorbiaceae*).  
 Nagassarium 3, t. 2=*Mesua ferrea* Linn. (*Guttiferae*).  
 Boa massy 5, t. 3=*Cubilia cubili* Merr. (*Sapindaceae*).  
 Radix etter 6, t. 4=indet.  
 Arbor sebi 7=*Dysoxylum* sp. (*Meliaceae*).  
 Morus indica 8, t. 5=*Morus alba* Linn. (*Moraceae*).  
 Cortex acris 9=?  
 Cortex igneus 10, t. 6, f. 1=? *Pittosporum* sp. (*Pittosporaceae*).  
 Caja panu 12, t. 6, f. 2=*Psychotria* sp. (*Rubiaceae*).  
 Cortex foetidus 12, t. 7=*Pittosporum moluccanum* Miq. (*Pittosporaceae*).  
 Cortex filarius 13=*Gyrinopsis brachyantha* Merr. (*Thymelaeaceae*).  
 Camean 14, t. 8, f. 1=?  
 Arbor nussalavica 14, t. 8, f. 2=*Dysoxylum* sp. (*Meliaceae*).  
 Oleander sinicus 15, t. 9, f. 1=*Nerium odorum* Mill. (*Apocynaceae*).  
 Pariens muscarum 16, t. 9, f. 2=? (sub. *Symplocos*).  
 Arbor vespertilionum 17=*Helicia serrata* R. Br. (*Proteaceae*).  
 Arbor vespertilionum II oppositifolia 17, t. 10=*Schizomeria serrata* Hochr. (*Cunoniaceae*).  
 Pauw (incl. maxima, minima, media) 18, t. 11=*Mangifera rumphii* Pierre. (*Anacardiaceae*).  
 Xylophyllus ceramica 19, t. 12=*Exocarpus epiphyllanthus* Merr. (*Santalaceae*).  
 Ayassa 20=? (sub. *Tetracera*, *Dilleniaceae* is prob. *Evodia* sp., *Rutaceae*).  
 Lignum vinosum 21=?  
 Bangel boaja 22=?  
 Stercus squillarum 22=?  
 Hystrix frutex 22, t. 13=*Barleria prionitis* Linn. (*Acanthaceae*).  
 Madorius 24, t. 14, f. 1=*Calotropis gigantea* Dry. (*Asclepiadaceae*).

<sup>\*</sup> Book 12, pages 193–256, tt. 77–90, is entitled "De arbusculis agens marinis & plantis saxosis seu de Lithodendris & Lithophytis." The forms described and figured are various alcyonarians, corals, sponges, etc., with the exception of the fruits of certain palms here listed.

- Catsjopiri 26, t. 14, f. 2=*Gardenia augusta* Merr. (Rubiaceae).  
 Lussa radja 27, t. 15=*Bucea amarissima* Merr. (Simarubaceae).  
 Radix mustelae 29, t. 16=*Rauwolfia serpentina* Hook. f. (Apocynaceae).  
 Fructus regis 32, t. 17, f. 1=*Helicteres isora* Linn. (Sterculiaceae).  
 Cheramela 34, t. 17, f. 2=*Cicca acida* Merr. (Euphorbiaceae).  
 Herpetica 35, t. 18=*Cassia alata* Linn. (Leguminosae).  
 Spina spinarum I mas 36, t. 19, f. 1, 2=*Flacourtia indica* Merr. (Flacourtiaceae).  
 Spina spinarum II femina 37=*Flacourtia indica* Merr. (Flacourtiaceae).  
 Tsjulang 38=*Aglaia odorata* Lour. (Meliaceae).  
 Oxyacantha javana 39, t. 19, f. 3=? *Carissa carandas* Linn. (Apocynaceae).  
 Spina pectinata 39=? *Carissa carandas* Linn. (Apocynaceae).  
 Terminalis rubra silvestris 40, t. 20=*Taetsia fruticosa* Merr. (Liliaceae).  
 Campana rubra 42=? *Pandorea* sp. (Bignoniaceae).  
 Radix sinica 42, t. 21, f. 1=*Panax ginseng* C. A. Mey. (Araliaceae).  
 Tjutsjau javanicum 50, t. 21, f. 2=*Salvia plebeia* R. Br. (Labiatae).  
 Soechas pilosa 51, t. 22, f. 1=*Adenosma capitatum* Benth. (Scrophulariaceae).  
 Cassutha cornea 52=*Marasmius* sp. (Hymenomycetinae).  
 Tubu-tubu 52, t. 22, f. 2=*Tapeinochilus ananassae* K. Sch. (Zingiberaceae).  
 Tingulong 54, t. 23, f. 1=*Protium javanicum* Burm. f. (Burseraceae).  
 Nanium calapparium 55, t. 23, f. 2=? *Myrtaceae*.  
 Malum aruanum 55, t. 24, f. 1=?  
 Caju gora aruanum 56, t. 24, f. 2=?  
 Palala aruana 56, t. 24, f. 3=*Horsfieldia* sp. (Myristicaceae).  
 Carandas 57, t. 25=*Carissa carandas* Linn. (Apocynaceae).  
 Flos siamicus 58, t. 26, f. 1=*Telosma odoratissima* Coville (Asclepiadaceae).  
 Scrotum cussi 59, t. 26, f. 2=?  
 Machilus angustifolia 60, t. 27, f. 1=*Neolitsea amboinensis* Merr. (Lauraceae).  
 Verbena rubra 60, t. 27, f. 2=*Aerva sanguinolenta* Blume (Amaranthaceae).  
 Tsjikin 61, t. 28, f. 1=*Lagerstroemia indica* Linn. (Lythraceae).  
 Ossifraga lactea 62, t. 29=*Euphorbia tirucalli* Linn. (Euphorbiaceae).  
 Laurus japanica 63=*Cinnamomum* sp. (Lauraceae).  
 Cinnamomum zeylanicum 64=*Cinnamomum* sp. (Lauraceae).  
 Culit Lawan 65=*Cinnamomum culilawan* Blume (Lauraceae).  
 Arbor camphorifera I vera 65, 68=*Cinnamomum camphora* T. Nees & Eberm. (Lauraceae).  
 Arbor camphorifera II occidentalis 65, 68=*Dryobalanops camphora* Colebr. (Dipterocarpaceae).  
 Smilax sarmentis spinulosis 72, t. 30=? *Smilax china* Linn. (Liliaceae).





## ADDENDA

As indicated in the footnote on page 168, the specimens of *Orchidaceae* collected by Doctor Robinson could not be cited under the species to which they pertain as Doctor Smith's manuscript and all the specimens were left at Leiden. Doctor Smith did not consider it advisable to take the specimens with him on his return to Buitenzorg on account of the abnormal conditions brought about by the war. Doctor Smith's report on the *Orchidaceae* of the Herbarium Amboinense was written at Buitenzorg, without access to Robinson's specimens or to his manuscript report on Robinson's collection. A copy of his report sent from Leiden was lost in transit, but a second copy was sent later, which reached Buitenzorg about the middle of June, and Manila July 11, 1917. At the time of the receipt of this report in Manila, the present work was in page proof, so that it was impracticable to cite the specimens of *Orchidaceae* in their proper places. The specimens are cited below.

*Platanthera susannae* (Linn.) Lindl.

AMBOINA, Soja road and Way tommo, *Robinson Pl. Rumph. Amb. 9*, August 1 and 16, 1913, terrestrial, on grassy hillsides, altitude 20 to 150 meters.

*Habenaria rumphii* (Brongn.) Lindl.

AMBOINA, Soja road, *Robinson Pl. Rumph. Amb. 11*, August 1, 1913, terrestrial, on grassy hillsides, altitude 100 to 300 meters.

*Anoectochilus reinwardtii* Blume.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb. 19*, November 5, 1913, sterile; from a cultivated plant originating in the adjacent hills.

*Zeuxine amboinensis* J. J. Sm.

AMBOINA, Way uri, *Reliquiae Robinsonianae 1616*, September 9, 1913, terrestrial, in river bottoms, altitude about 25 meters. Flowers white.

*Coelogyne rumphii* Lindl.

AMBOINA, Soja and Bato merah, *Robinson Pl. Rumph. Amb. 7*, August 24 and 31, 1913, altitude 150 to 300 meters.

*Calanthe veratrifolia* R. Br.

AMBOINA, Koeseokoesoe sereh, *Robinson Pl. Rumph. Amb. 10*, August 7 and 23, 1913, altitude 200 meters; terrestrial. Flowers white.

*Spathoglottis plicata* Blume.

AMBOINA, town of Amboina, Soja road, Batoe gadjah, and Hitoe messen, *Robinson, Pl. Rumph. Amb. 15, Reliquiae Robinsonianae 1628*, July, August, and November, 1913, terrestrial altitude 10 to 150 meters.

**Dendrobium papilioniferum** J. J. Sm.

AMBOINA, Wakal, on *Sonneratia*, *Robinson Pl. Rumph. Amb.* 13, November, 1913.

**Dendrobium ephemerum** J. J. Sm.

AMBOINA, Hitoe lama, *Robinson Pl. Rumph. Amb.* 19, November 5, 1913,

**Dendrobium moluccense** J. J. Sm.

AMBOINA, Roemah tiga, *Robinson Pl. Rumph. Amb.* 12, July 20, 1913, epiphytic, usually on *Calophyllum inophyllum* at sea level. The flowers very dark red.

**Dendrobium purpureum** Roxb.

AMBOINA, Waë, *Robinson Pl. Rumph. Amb.* 5, November 29, 1913, altitude about 20 meters. Epiphytic, pendant, the flowers lilac, the sepals tipped with green.

**Grammatophyllum scriptum** (Linn.) Blume.

AMBOINA, Paso, *Robinson Pl. Rumph. Amb.* 6, October 29, 1913, epiphytic, altitude 10 meters. The flowers green with purple blotches; native name *manumpang*.

**Phalaenopsis amabilis** (Linn.) Blume.

AMBOINA, Amahoesoe, *Robinson Pl. Rumph. Amb.* 8, August 30, 1913, epiphytic, altitude 4 to 8 meters. Flowers white, callosities on the lip with yellow margins and lilac spots.

**Luisia confusa** Reichb. f.

AMBOINA, Paso, *Reliquiae Robinsonianae* 1626, July 20, 1913, epiphytic, altitude 2 meters. Flowers yellowish-green, but the lip lilac-purple except for the yellow margin.

**Renanthera moluccana** Blume.

AMBOINA, Soja, *Robinson Pl. Rumph. Amb.* 20, September 27, 1913. Flowers orange-red, spotted all over with red, the tip of the column white. Native names *bunga karang* and *manumpang karang*.

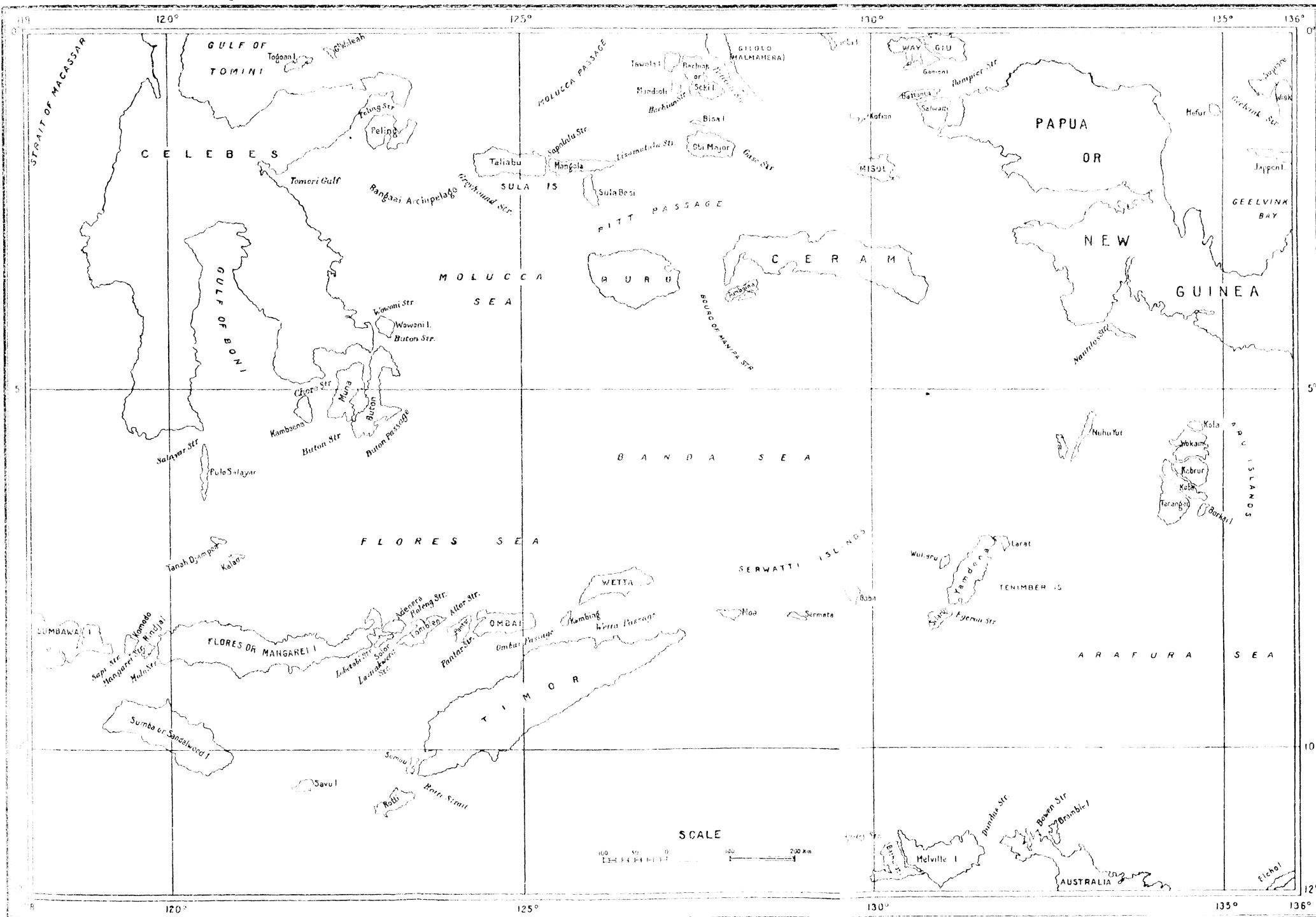


PLATE I. AMBOINA AND THE SURROUNDING ISLANDS.



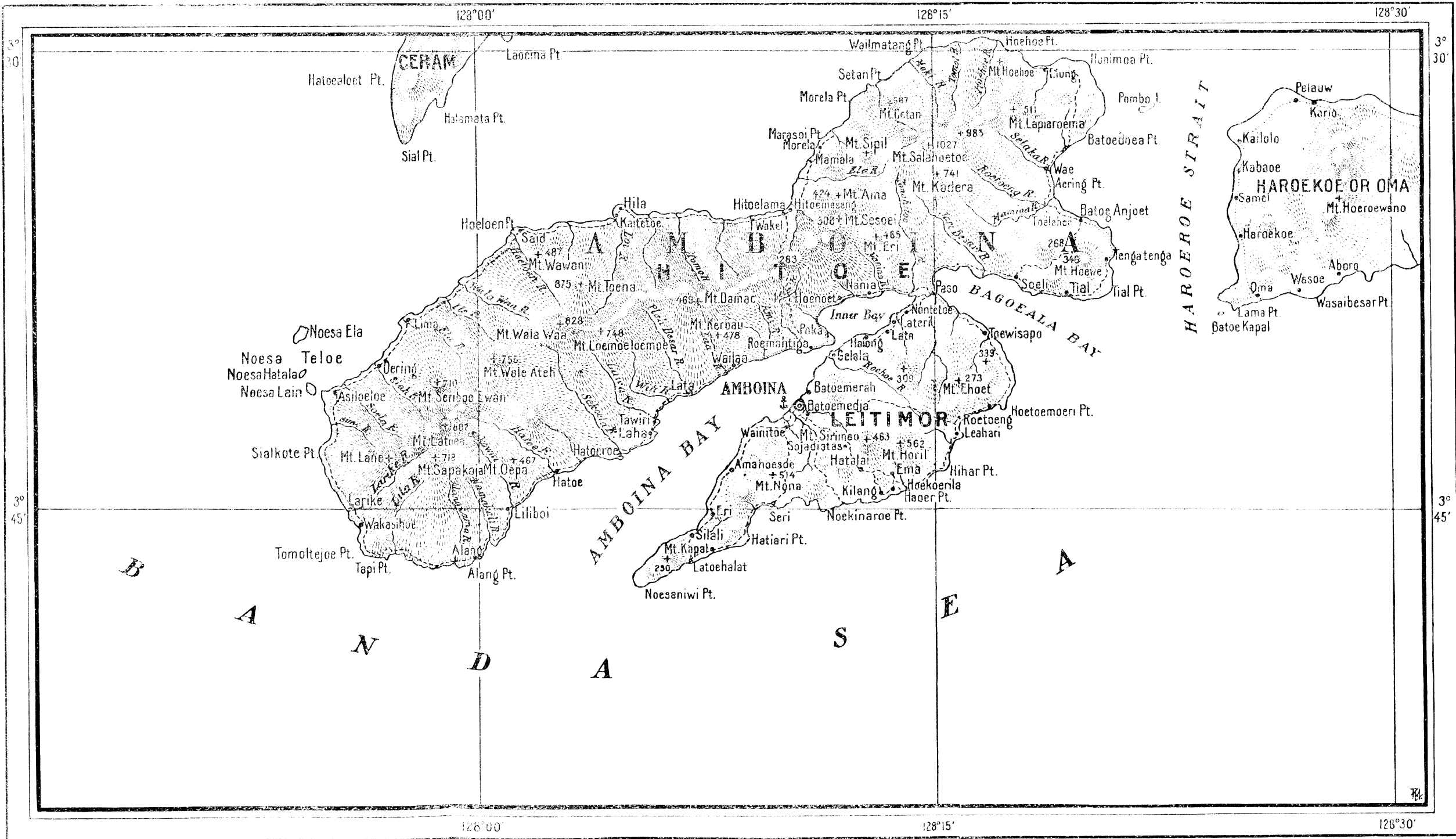


PLATE II. AMBOINA ISLAND.



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